

UNIVERSITY OF WASHINGTON
DEPARTMENT OF OCEANOGRAPHY
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Technical Report No. 55

NORTHEAST PACIFIC OCEAN PHYSICAL AND CHEMICAL DATA
Summers of 1955 and 1956

A preliminary tabulation of oceanographic data
collected by M.V. Brown Bear and M.V. John N. Cobb

Compiled by
Cuthbert M. Love

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for RICHARD H. FLEMING
Executive Officer

ABSTRACT

This report presents physical and chemical data collected during the summers of 1955 and 1956 in the Northeastern Pacific and off the coasts of Vancouver Island, Washington, Oregon, and Northern California. Observations were made aboard the research vessel Brown Bear of the University of Washington Department of Oceanography, and aboard the exploratory fishing vessel John N. Cobb of the United States Fish and Wildlife Service.

Charts show the positions of the stations sampled. Values are given for temperature, salinity, density, dissolved oxygen, and dissolved inorganic phosphate for selected depths from surface to bottom.

A major objective of the cruises was the investigation of the relationship between water properties and the occurrence and distribution of albacore tuna. Personnel of the Fish Commission of the State of Oregon carried out exploratory fishing for albacore during both summers, thus the water characteristics presented in this report will supplement any reports made on the contemporary albacore tuna catches by the Fish Commission of Oregon.

TABLE OF CONTENTS

INTRODUCTION	1
Area and Station Numbers	1
Sampling Bottles and Determination of Properties	2
Previous Publications	3
Personnel	3
At Sea	3
Ashore	4
EXPLANATION OF PHYSICAL AND CHEMICAL DATA TABLES	6
CODES USED FOR REPORTING WEATHER CONDITIONS	8
DATA TABLES - M.V. <u>Brown Bear</u> , Cruise 108	9
DATA TABLES - M.V. <u>Brown Bear</u> , Cruise 144	52
DATA TABLES - M.V. <u>John N. Cobb</u> , Cruise 28	95
LIST OF REFERENCES	104
FIGURE 1	105
FIGURE 2	106
FIGURE 3	107

INTRODUCTION

This report contains offshore oceanographic data collected during Cruises 108 and 144 of the research vessel Brown Bear of the Department of Oceanography, University of Washington, and during Cruise 28 of the exploratory fishing vessel John N. Cobb of the United States Fish and Wildlife Service. These cruises took place during the summer months of 1955 and 1956 and, in general, covered the area off the coasts of Vancouver Island, Washington, Oregon, and Northern California and on Cruise 108 extended 1100 miles to the westward.

The data from these three cruises have been presented together because a major objective of each cruise was the investigation of the relationship between water properties and the occurrence and distribution of albacore tuna. Brown Bear Cruise 144 and John N. Cobb Cruise 28 took place simultaneously and the two vessels operated in company for a portion of the time. Exploratory trolling for albacore took place during both Brown Bear cruises; this work was carried out by personnel from the Oregon Fish Commission. Trolling and gill-net fishing for albacore and salmon was done aboard the John N. Cobb. The oceanographic observations aboard the John N. Cobb were made by personnel from the Department of Oceanography. Only the oceanographic data are presented in this report. Preliminary narrative reports describing all the activities carried on during these cruises have been issued by the agencies concerned (1), (2), (3), (4).

Area and Station Numbers

Figures 1 and 2 show the track followed and the locations of oceanographic stations occupied during Brown Bear Cruise 108. Figure 3 shows Brown Bear Cruise 144 and the oceanographic stations taken during John N. Cobb Cruise 28.

The station numbers used on Brown Bear cruises consist of two parts: the cruise number, followed by a dash, followed by a number starting with "1" for the first station occupied on that cruise and continuing consecutively (i.e. 108-1, 108-2, etc.). Stations on John N. Cobb Cruise 28 are numbered consecutively with no prefix. On John N. Cobb Station 1, two casts were made during the evening of 17 July and an additional cast was made the following morning. The two sets of data have been tabulated on separate pages although both were labelled Station 1.

Sampling Bottles and Determination of Properties

Aboard the Brown Bear, water samples were collected with Nansen bottles and Fjarlie bottles (5). Nansen bottles were used aboard the John N. Cobb except that the sample from the surface was dipped with a bucket. The temperature of this surface sample was read with a laboratory thermometer.

The depths of subsurface observations were calculated from measured wire angle, from readings of unprotected reversing thermometers, and from curves of wire length (L) minus thermometric depth (Z) versus wire length, the L-Z curve method described by LaFond (6).

Salinity analyses were run in the Seattle laboratories of the Department of Oceanography. Copenhagen standard sea water was used as the standard in the determinations. Dissolved oxygen was obtained by the modified Winkler method described by Thompson and Robinson (7). Soluble inorganic phosphate was determined by the method of Thompson and Robinson (8), using a Beckman Spectrophotometer Model DU. The phosphate data, corrected for salt error, are reported conventionally to the second decimal place in microgram-atoms per liter, although it is realized

that the individual determinations may be in error by 5 to 10 per cent.

Previous Publications Containing Offshore Oceanographic Data

Oceanographic data collected in offshore waters by the Department of Oceanography since March 1952 have been presented in the following reports:

<u>Report No.</u>	<u>Reference No.</u>	<u>Contains Data Collected:</u>
Technical Report No. 22	54-6	March - September 1952
Technical Report No. 23	54-7	April - June 1953
Technical Report No. 34	54-20	July - September 1953
Technical Report No. 49	56-10	April 1954-January 1955
Special Report No. 22	56-4	August - September 1955 (NORPAC)

Personnel

At Sea

Following is a list of the personnel assigned on the scientific staff. Unless otherwise indicated all personnel are from the Department of Oceanography:

<u>Name</u>	<u>Title</u>
Budinger, Thomas F.	Research Assistant
Coatsworth, James	Senior Marine Aid
Cuzon du Rest, Rene P.*	Senior Marine Aid
Enbysk, Mrs. Betty J.	Laboratory Technician
Fleming, Dr. Richard H.*	Professor and Executive Officer
Frolander, Dr. Herbert F.	Assistant Professor
Hanson, Donald S.	Laboratory Technician
Jackson, Hewitt R.	Senior Draftsman
Kreek, Peter**	Engineering Aid
Lincoln, John H.	Research Instructor

* Observers aboard John N. Cobb and Brown Bear. ** aboard John N. Cobb

<u>Name</u>	<u>Title</u>
Love, Cuthbert M.	Research Instructor
McLean, Wayne	Laboratory Technician
McMillin, John G.	Laboratory Assistant
Nayudu, Y. R.	Senior Laboratory Technician
Olcay, Lt. Necip	Marine Aid
Owen, Carleton	Able Seaman (Scientific Assistant)
Ozturgut, Lt. Erdogan	Marine Aid
Pelly, Charles A.	Marine Aid
Semon, Miss Darrelyn	Marine Aid
Tomlinson, Miss Barbara	Laboratory Helper

Burck, Wayne)	
)	
Holmberg, Edwin K.)	Representing the Oregon Fish Commission
Jones, Walter G.)	
)	
Miller, George)	

Ashore

Persons engaged in the analysis and the preparation of these data for publication included:

<u>Name</u>	<u>Title</u>
Amidon, James L.	Senior Laboratory Technician
Burnett, Mrs. Cynthia	Typist
Collias, Eugene E.	Research Instructor
Doyle, Donald R.	Senior Draftsman
Favorite, Felix	Research Assistant
Haselwood, Mrs. Edith	Assistant Editor

<u>Name</u>	<u>Title</u>
Helle, James R.	Senior Marine Aid
Lord, Mrs. Marion E.	Laboratory Technician
Martin, Thomas O.	Engineering Aid
McGraw, Miss Elizabeth A.	Engineering Aid
McKenzie, Mrs. Jeanette	Secretary
Morse, Miss Betty-Ahn	Senior Laboratory Technician
Morse, Lt. Richard	Student Helper
Riley, Ralph W.	Marine Chemist

Some of the sea-going personnel were also engaged in the shore-side preparation of the data.

EXPLANATION OF PHYSICAL AND CHEMICAL DATA TABLES

Station positions are given to the nearest minute of latitude and longitude. The messenger time reported is the time the messenger was released on the first cast made on station. The time zone used in all cases was +8. On all of the deeper stations (below 200 meters) the sampling was done in two or more casts. The cast number is indicated in the left hand column. On Cruise 108 there was usually a two-bottle depth overlap between the shallow and deep casts, that is, the lower two bottles of the shallow cast were arranged to sample 200 and 300 meters respectively, and the upper two bottles of the deep cast sampled at the same depths. On Cruise 144 there was a one-bottle overlap at 300 meters.

During the drawing of the smooth curves of property versus depth from which the values at standard depth were interpolated, certain values obviously did not fit the smooth curve. In the region of the overlapping bottles there were often two different values of a property at or near the same depth. In this case, sometimes the smooth curve was drawn between the two points, in other cases one of the two points was chosen and the other disregarded. All values have been tabulated, and the following symbols indicate which values were chosen when drawing the curve.

- a - This value used in drawing smooth curve
- b - This value deviates from smooth curve; not used
- c - Smooth curve drawn between these two points
- d - " " " " " " "

The upper layers (from surface to 30 meters) of the temperature versus depth curves for the John N. Cobb data were drawn using the bathythermograph profile as a guide. Interpolated temperatures at

standard depths were picked off the curves so drawn. This procedure was not necessary for Brown Bear data as the spacing of Nansen bottles in the upper layers was closer on these casts.

The depth listed was determined by echo-sounder. Barometric pressure is in inches of mercury. The following weather observations: weather (present weather), sea height, visibility, and clouds, are reported according to the numerical code given in U.S. Navy Hydrographic Office Publication No. 606-c, Bathythermograph Observations. For convenience, the codes for sea height, visibility, cloud type, cloud amount (cover), and appropriate sections from the present weather code from the above publication are reproduced herein.

Extrapolated values in the tables are enclosed in parentheses.

CODES USED FOR REPORTING WEATHER CONDITIONS

Taken from U. S. Navy Hydrographic Office Publication

No. 606-c, Bathythermograph Observations

Present Weather

Code

- 00 Cloud development not observed or not observable
- 01 Clouds generally dissolving or becoming less developed
- 02 State of sky on the whole unchanged
- 03 Clouds generally forming or developing
- 15 Precipitation within sight, reaching ground, but distant (estimated more than 3 miles from ship)
- 20 Drizzle, not freezing (during preceding hour but not at time of observation)
- 50 Drizzle, not freezing, intermittent (slight)
- 51 Drizzle, not freezing, continuous (slight)
- 52 Drizzle, not freezing, intermittent (moderate)
- 60 Rain, not freezing, intermittent (slight)
- 61 Rain, not freezing, continuous (slight)
- 62 Rain, not freezing, intermittent (moderate)

Visibility

Code

- 0 Dense fog 50 yards
- 1 Thick fog 200 yards
- 2 Fog 400 yards
- 3 Moderate fog 1000 yards
- 4 Thin fog or mist 1 mile
- 5 Visibility poor 2 miles
- 6 Visibility moderate 5 miles
- 7 Visibility good 10 miles
- 8 Visibility very good 30 miles
- 9 Visibility excellent
.. over 30 miles

Cloud Amount

Code

- 0 No clouds
- 1 Less than 1/10, or 1/10
- 2 2/10 and 3/10
- 3 4/10
- 4 5/10
- 5 6/10
- 6 7/10 and 8/10
- 7 9/10 and 9/10 plus
- 8 10/10
- 9 Sky obscured

Sea Height

Code

- 0 Flat calm
- 1 Less than 1 foot
- 2 1 to 3 feet
- 3 3 to 5 feet
- 4 5 to 8 feet
- 5 8 to 12 feet
- 6 12 to 29 feet
- 7 20 to 40 feet

Cloud Type

Code

- 0 Stratus or fractostratus
- 1 Cirrus
- 2 Cirrostratus
- 3 Cirrocumulus
- 4 Altocumulus
- 5 Altostratus
- 6 Stratocumulus
- 7 Nimbostratus
- 8 Cumulus or fractocumulus
- 9 Cumulonimbus

M. V. BROWN BEAR CRUISE NO. 108STATION 108-1

48° 32'N, 124° 46'W - Mouth of Strait of Juan de Fuca

14 June 1955 Weather: 02 Barometer: 26.96 in
 Messenger time: 0108 (+8) Sea height: 2 Wind: 300°, 4 km
 Depth: 100 fm, 183 m Visibility: 8 Clouds: 6, amt 7
 Air temperature: dry 50°F, wet 50°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1	0	9.74	31.77	24.51	0.560	1.50
	10	8.96	31.91	24.73	0.464	1.65
	20	8.03	32.11	24.95	0.357	1.94
	29	7.61	32.52	24.41	0.311	1.85
	48	6.97	33.51	26.28	0.247	2.18
	71	6.61	33.77	26.53	0.208	2.40
	95	6.26	33.87	26.65	0.159	2.48
	143	5.78	33.96	26.78	0.134	2.55

INTERPOLATED

	0	9.75	31.77	24.49	0.561	1.50
	10	8.95	31.91	24.73	0.464	1.65
	20	8.03	32.11	25.02	0.357	1.93
	30	7.62	32.52	25.40	0.312	1.85
	50	7.38	33.51	26.22	0.243	2.20
	75	6.60	33.79	26.54	0.195	2.42
	100	6.18	33.88	26.67	0.155	2.49
	150	(5.75)	(33.97)	(26.79)	(0.139)	(2.56)

STATION 108-2

48° 30'N, 125° 03'W - Cape Flattery

14 June 1955 Weather: 03 Barometer: 29.96 in
 Messenger time: 0332 (+8) Sea height: 1 Wind: 300°, 4 kn
 Depth: 72 fm, 128 m Visibility: 10 Clouds: 6, amt 9
 Air temperature: dry 48°F, wet 48°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P µg-at/L
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OBSERVED

1	0	9.10	32.67	25.31	0.645	1.00
	10	8.66	32.73	25.41	0.513	1.43
	20	7.86	32.96	25.51	0.381	1.88
	30	7.34	33.17	25.96	0.292	2.07
	50	6.73	33.53	26.32	0.199	2.50
	75	6.50	33.71	26.49	0.175	2.55
	100	6.19	33.86	26.65	0.155	2.60

INTERPOLATED

	0	9.10	32.67	25.31	0.645	1.00
	10	8.39	32.73	25.45	0.612	1.43
	20	7.88	32.96	25.71	0.380	1.87
	30	7.36	33.17	25.95	0.293	2.07
	50	6.74	33.53	26.32	0.199	2.50
	75	6.50	33.71	26.50	0.175	2.56
	100	6.19	33.86	26.65	0.155	2.60

STATION 108-3

47° 59'N, 124° 57'W - Cape Johnson

14 June 1955
 Messenger time: 0905 (+8)
 Depth: 50 fm, 91 m

Weather: 02
 Sea height: 2
 Visibility: 8
 Air temperature: dry 49°F, wet 48°F

Barometer: 30.04 in
 Wind: 290°, 2 kn
 Clouds: 6, amt 8

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	9.70	32.65	25.19	0.741	0.99
	10	9.50	32.65	25.22	0.662	0.84
	19	7.28	32.94	25.78	0.374	1.48
	29	6.97	33.28	26.09	0.318	1.56
	48	6.96	33.55	26.31	0.285	1.90
	72	6.70	33.78	26.50	0.239	2.22
	97	5.92	33.95	26.76	0.156	1.85b

INTERPOLATED

	0	9.70	32.65	25.19	0.742	0.99
	10	9.50	32.65	25.22	0.662	0.84
	20	7.23	33.09	25.91	0.373	1.47
	30	6.96	33.32	26.13	0.318	1.56
	50	6.95	33.55	26.32	0.280	1.92
	75	6.65	33.80	26.54	0.238	-

STATION 108-4

47° 36'N, 124° 58'W - W of Cape Elizabeth

14 June 1955 Weather: 01 Barometer: 30.13 in
 Messenger time: 1252 (+8) Sea height: 1 Wind: 270°, 2 kn
 Depth: 85 fm, 176 m Visibility: 9 Clouds: 6, amt 7
 Air temperature: dry 56°F, wet 52°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1	0	10.02	32.11	24.72	0.675	0.553
	10	9.48	32.14	24.82	0.632	0.712
	20	9.18	32.38	25.06	0.700	0.944
	30	7.60	32.56	25.44	0.466	1.49
	50	6.98	32.96	25.84	0.441	1.79
	74	7.26	33.55	26.27	0.296	2.12
	99	7.10	33.81	26.49	0.244	2.22
	148	5.91	33.98	26.78	0.151	2.54

INTERPOLATED

	0	10.02	32.11	24.72	0.675	0.55
	10	9.48	32.14	24.82	0.632	0.63
	20	9.17	32.38	25.06	0.700	0.94
	30	7.60	32.56	25.44	0.467	1.50
	50	6.98	33.18	26.01	0.442	1.79
	75	7.25	33.55	26.28	0.297	2.12
	100	7.10	33.83	26.51	0.268	2.22
	150	(5.91)	(33.98)	(26.78)	(0.147)	(2.54)

STATION 108-5

47° 07'N, 124° 43'W - W of Grays Harbor

14 June 1955
 Messenger time: 1714 (+8)
 Depth: 64 fm, 109 m

Weather: 01
 Sea height: 2
 Visibility: 9
 Air temperature: dry 51°F, wet 48°F

Barometer: 30.16 in
 Wind: 265°, 3 kn
 Clouds: 6, 8, amt 6

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	11.16	32.04	24.46	0.630	0.640
	10	10.46	32.08	24.61	0.625	0.601
	20	9.89	32.20	24.81	0.721	0.587
	30	7.12	32.76	25.67	0.444	1.58
	49	7.04	33.26	26.08	0.324	2.14
	74	7.14	33.62	26.35	0.276	2.22
	98	6.33	33.92	26.69	0.168	2.56

INTERPOLATED

	0	11.16	32.04	24.47	0.630	0.64
	10	10.46	32.08	24.61	0.625	0.60
	20	9.88	32.20	24.81	0.721	0.58
	30	7.12	32.76	25.67	0.443	1.999
	50	7.04	33.27	26.08	0.323	2.16
	75	7.13	33.62	26.34	0.277	2.22

STATION 108-6

46° 36'N, 124° 34'W - W of Willapa Bay

14 June 1955 Weather: 02 Barometer: 30.20 in
 Messenger time: 2132 (+8) Sea height: 2 Wind: 250°, 3 kn
 Depth: 97 fm, 181 m Visibility: 9 clouds: 6, 4, amt 6
 Air temperature: dry 50°F, wet 48°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1	0	11.11	32.08	24.51	0.755	0.475
	10	9.66	32.14	24.79	0.625	0.861
	20	9.20	32.36	25.05	0.663	0.755
	30	8.05	32.51	25.35	0.535	1.30
	50	7.20	33.09	25.90	0.366	2.05
	75	7.10	33.72	26.44	0.229	2.42
	100	6.58	33.89	26.62	0.151	2.62
	125	6.30	33.95	26.71	0.170	2.52

INTERPOLATED

	0	11.11	32.08	24.51	0.755	0.47
	10	9.66	32.14	24.80	0.625	0.86
	20	9.20	32.36	25.05	0.662	0.75
	30	8.05	32.51	25.34	0.535	1.30
	50	7.20	33.09	25.90	0.371	2.05
	75	7.10	33.74	26.45	0.230	2.22
	100	6.56	33.89	26.62	0.151	2.62

STATION 108-7

46° 05' N, 124° 25' W - NW of Tillamook Head

15 June 1955
 Messenger time: 0224 (+8)
 Depth: 69 fm, 126 m

Weather: 01 Barometer: 30.24 in
 Sea height: 1 Wind: 270°, 6 kn
 Visibility: 12 Clouds: 00, amt 4
 Air temperature: dry 50°F, wet 48°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	10.48	27.72	21.23	0.700	0.891
	10	9.77	32.63	25.15	0.638	0.980
	20	7.39	32.77	25.64	0.391	1.81
	30	7.22	33.06	25.88	0.318	2.09
	49	6.97	33.78	26.49	0.197	2.70
	74	6.43	33.92	26.67	0.168	2.82
	99	6.00	34.00	26.78	0.119	2.78

INTERPOLATED

	0	10.47	27.72	21.23	0.700	0.89
	10	9.77	32.63	25.16	0.638	0.98
	20	7.39	32.77	25.64	0.382	1.61
	30	7.05	33.06	25.91	0.318	2.09
	50	6.96	33.79	26.49	0.197	2.71
	75	6.43	33.92	26.67	0.168	2.82
	100	(6.00)	(34.00)	(26.78)	(0.119)	(2.78)

STATION 108-9

45° 01'N, 124° 18'W - SW of Cascade Head

15 June 1955
 Messenger time: 1306 (+8)
 Depth: 97 fm, 175 m

Weather: 02
 Sea height: 1
 Visibility: 9
 Air temperature: dry 54°F, wet 50°F

Barometer: 30.32 in
 Wind: 300°, 2 kn
 Clouds: 8, amt 3

Cast no.	Depth m	T °C	S o/oo	Density σ _t	O ₂ mg-at/L	PO ₄ -P μg-at/L
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OBSERVED

1	0	12.52	29.97	22.63	0.674	0.775
	10	10.34	*	*	0.565	1.06
	20	8.44	*	*	0.516	1.21
	30	7.38	32.64	25.53	0.480	1.50
	50	7.32	33.22	26.01	0.322	2.18
	75	7.32	33.65	26.34	0.255	2.34
	100	7.11	33.82	26.50	0.209	2.44
	125	6.66	33.88	26.60	0.153	2.60
	150	6.22	33.95	26.72	0.174	2.54

INTERPOLATED

	0	12.52	29.97	23.62	0.673	0.78
	10	10.34	-	-	0.564	1.06
	20	8.44	-	-	0.516	1.21
	30	7.38	32.64	25.53	0.480	1.50
	50	7.32	33.22	26.01	0.323	2.17
	75	7.32	33.65	26.35	0.255	2.34
	100	7.12	33.82	26.50	0.209	2.44
	150	6.24	33.95	26.84	0.173	2.54

* Note:

Two entirely different salinity values were obtained from the analyses of water samples at 10 and 20 meters this station. This discrepancy was not noticed in time for a rerun of the analyses to be made. Since either value would fit logically into the salinity versus depth curve, both values with their corresponding sigma-t values are tabulated below.

10	30.54	23.44
	32.31	24.82
20	30.54	23.74
	32.31	25.12

STATION 108-10

44° 24'N, 124° 38'W - W of Waldport

15 June 1955 Weather: 01 Barometer: 30.29 in
 Messenger time: 1844 (+8) Sea height: 1 Wind 340°, 7 kn
 Depth: 63 fm, 115 m Visibility: 9 Clouds: 8, amt 1
 Air temperature: dry 56°F, wet 52°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1	0	10.34	32.74	25.16	0.735	0.804
	10	8.64	32.92	25.58	0.556	1.73
	20	8.04	32.92	25.67	0.419	1.84
	30	7.98	33.13	25.82	0.371	1.98
	50	7.97	33.54	26.15	0.337	2.32
	75	7.07	33.77	26.46	0.182	2.46
	100	6.50	33.96	26.69	0.140	2.68

INTERPOLATED

	0	10.34	32.74	25.15	0.735	0.90
	10	8.65	32.92	25.57	0.557	1.73
	20	8.02	32.92	25.67	0.418	1.84
	30	7.96	33.13	25.82	0.372	1.97
	50	7.95	33.54	26.16	0.337	2.31
	75	7.06	33.77	26.47	0.182	2.46
	100	6.50	33.96	26.69	0.140	2.68

STATION 108-11

43° 54' N, 124° 28' W - SW of Hecata Head

15-16 June 1955 Weather: 02 Barometer: 30.28 in
 Messenger time: 2359 (+8) Sea height: 1 Wind: 315°, 13 km
 Depth: 72 fm, 131 m Visibility: 9 Clouds: 8, amt 1
 Air temperature: dry 49°F, wet 48°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1	0	9.40	33.06	25.56	0.710	1.33
	10	9.56	33.13	25.57	0.735	1.11
	20	8.46	33.40	25.96	0.530*	1.99
	30	9.17	33.62	26.04	0.440*	1.89
	50	7.43	33.76	26.42	0.226	2.04
	74	6.75	33.92	26.62	0.168	3.04
	99	6.41	33.98	26.71	0.146	2.70
	124	6.25	34.03	26.78	0.125	2.84

INTERPOLATED

	0	9.40	33.06	25.56	0.710	1.34
	10	9.55	33.13	25.58	0.735	1.10
	20	8.46	33.40	25.96	0.530	1.99
	30	9.15	33.62	26.05	0.440	1.89
	50	7.44	33.76	26.41	0.226	2.04
	75	6.74	33.92	26.63	0.167	3.04
	100	6.41	33.98	26.71	0.144	2.70

* Note:

These two values have been interchanged from their order on the original data sheet because it appears that a mistake was made in numbering the sample bottles.

STATION 108-12

43° 24'N, 124° 31'W - Off Cape Arago

16 June 1955 Weather: 03 Barometer: 30.25 in
 Messenger time: 0431 (+8) Sea height: 1 Wind: 015°, 5 kn
 Depth: 63 fm, 114 m Visibility: 9 Clouds: 6, amt 2
 Air temperature: dry 48°F, wet 48°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
1	0	8.86	32.38	25.10	0.565	1.01
	10	8.59	32.46	25.22	0.573	1.24
	20	8.11	32.63	25.42	0.479	1.70
	30	7.75	-	-	-	-
	50	8.52	33.51	26.05	0.410	2.24
	75	6.99	33.88	26.56	0.167	2.61
	100	6.62	33.97	26.68	0.112	2.36

INTERPOLATED						
	0	8.85	32.38	25.11	0.565	1.01
	10	8.58	32.46	25.22	0.573	1.24
	20	8.12	32.63	25.42	0.478	1.70
	30	7.73	33.00	25.77	0.450	1.92
	50	8.54	33.51	26.05	0.410	2.24
	75	6.97	33.88	26.56	0.163	2.61
	100	6.62	33.97	26.68	0.112	2.36

STATION 108-13

12° 54'N, 124° 43'W - Off Cape Blanco

16 June 1955 Weather: 02 Barometer: 30.28 in
 Messenger time: 1251 (+8) Sea height: 1 Wind: 320°, 6 km
 Depth: 70 fm, 128 m Visibility: 9 Clouds: 6, amt 2
 Air temperature: dry 51°F, wet 50°F

Cast no.	Depth m	T °C	S o/oo	Density σ _t	O ₂ mg-at/L	PO ₄ -P μg-at/L
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OBSERVED

1	0	9.14	33.39	25.87	0.436	2.18
	10	8.29	33.58	26.13	0.372	2.10
	20	7.74	33.64	26.28	0.308	2.52
	30	7.76	33.77	26.36	-	-
	50	7.02	33.93	26.60	0.216	2.34
	75	6.74	33.99	26.68	0.189	2.52
	100	6.69	33.97	26.67	0.188	2.52

INTERPOLATED

	0	9.12	33.39	25.87	0.437	2.18
	10	8.27	33.58	26.16	0.372	2.10
	20	7.74	33.64	26.28	0.308	2.52
	30	7.76	33.77	26.37	0.258	2.54
	50	7.03	33.93	26.60	0.217	2.54
	75	6.75	33.99	26.67	0.188	2.72
	100	6.68	33.97	26.67	0.188	2.72

STATION 108-14

42° 54' N, 124° 57' W - Off Cape Blanco

16 June 1955 Weather: 03 Barometer: 30.27 in
 Messenger time: 1616 (+8) Sea height: 1 Wind: calm
 Depth: 390 fm, 707 m Visibility: 9 Clouds: 5, amt 8
 Air temperature: dry 54°F, wet 52°F

Cast no.	Depth m	T °C	S o/oo	Density σ _t	O ₂ mg-at/L	PO ₄ -P μg-at/L
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OBSERVED

1	0	10.64	33.21	25.48	0.450	1.66
2	11	9.16	33.15	25.65	0.371	1.66
	21	8.36	33.36	25.94	0.430	1.84
	32	8.27	33.39	25.98	0.416	1.89
	52	7.92	33.52	26.16	0.246	2.08
	78	7.46	33.78	26.42	0.206	2.28
	104	7.13	33.89	26.56	0.178	2.34
	157	6.78	33.95	26.64	0.192	2.34
	209	6.70	34.06	26.74	0.154	2.44
	314	6.24	34.10	26.84	0.096	2.47
	522	5.53	34.16	26.97	0.057	2.71

INTERPOLATED

	0	10.63	33.21	25.46	0.450	1.66
	10	9.15	33.15	25.66	0.372	1.66
	20	8.35	33.36	25.95	0.425	1.84
	30	8.27	33.39	25.98	0.422	1.89
	50	8.00	33.50	26.12	0.263	2.08
	75	7.49	33.76	26.40	0.207	2.27
	100	7.17	33.88	26.54	0.184	2.34
	150	6.80	33.94	26.63	0.191	2.34
	200	6.70	34.05	26.73	0.158	2.43
	250	6.54	34.08	26.78	0.128	2.46
	300	6.29	34.095	26.83	0.104	2.47
	400	5.93	34.13	26.89	0.074	2.55
	500	5.62	34.15	26.94	0.060	2.68

STATION 108-15

42° 54'N, 125° 08'W - Off Cape Blanco

16 June 1955 Weather: 02 Barometer: 30.25 in
 Messenger time: 2018 (+8) Sea height: 1 Wind: calm
 Depth: 1000 fm, 1829 m Visibility: 9 Clouds: 5, amt 8
 Air temperature: dry 54°F, wet 53°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	10.15	32.45	24.95	0.599	1.08
	11	8.70	32.58	25.29	0.561	1.54
	21	8.07	32.83	25.58	0.466	1.62
	31	7.80	33.05	25.80	0.400	1.77
	52	7.60	33.51	26.19	0.294	2.16
	79	7.62	33.72	26.37	0.259	2.23
	105	7.39	33.83	26.47	0.228	2.18
	159	6.98	33.93	26.60	0.226	2.33
	210	6.55 ^c	33.97 ^c	26.68	0.203 ^c	2.32 ^c
	313	6.18 ^d	34.10 ^d	26.84	0.099 ^d	2.68 ^d
1	210	6.46 ^c	33.95 ^c	26.68	0.190 ^c	2.20 ^c
	314	6.14 ^d	34.11 ^d	26.86	0.090 ^d	2.46 ^d
	521	5.05	34.21	27.07	0.043	2.68
	786	4.28	34.34	27.25	0.022	2.56
	1054	3.66	34.43	27.38	0.014	2.89
	1589	2.53	34.54	27.58	0.079	2.96

INTERPOLATED

0	10.16	32.45	24.95	0.598	1.07
10	8.77	32.54	25.25	0.568	1.52
20	8.11	32.80	25.56	0.525	1.60
30	7.80	33.05	25.80	0.399	1.76
50	7.61	33.48	26.15	0.303	2.15
75	7.62	33.71	26.35	0.254	2.22
100	7.44	33.81	26.45	0.230	2.20
150	7.04	33.92	26.59	0.227	2.32
200	6.61	33.96	26.67	0.204	2.26
250	6.39	33.99	26.72	0.138	2.35
300	6.23	34.08	26.82	0.102	2.54
500	5.68	34.17	26.96	0.066	2.66
500	5.16	34.21	27.05	0.045	2.68
600	4.79	34.24	27.11	0.034	2.66
700	4.48	34.29	27.19	0.027	2.58
800	4.22	34.34	27.26	0.021	2.58
1000	3.76	34.41	27.36	0.015	2.85
1200	3.30	34.47	27.46	0.021	2.94
1500	2.72	34.53	27.55	0.063	2.96

42° 56'N, 125° 54'W - W of Cape Blanco

17 June 1955 Weather: 51 Barometer: 30.16 in
 Messenger time: 0450 (+8) Sea height: 2 Wind: 220°, 12 km
 Depth: 1630 fm, 2980 m Visibility: 6 Clouds: 0, amt 9
 Air temperature: dry 52°F, wet 52°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	12.65	31.89	24.08	0.556	0.505	
	11	12.63	31.90	24.09	0.553	0.505	
	21	12.37	32.03	24.23	0.556	0.525	
	32	12.04	32.25	24.48	0.560	0.574	
	53	9.79	32.52	25.08	0.581	0.815	
	79	8.97	32.66	25.31	0.574	0.975	
	105	8.42	32.79	25.50	0.551	1.15	
	158	7.77	33.66	26.28	0.304	1.96	
	209	7.28 ^c	33.91	26.55	0.214 ^c	2.16 ^c	
	314	6.30 ^d	34.02	26.76	0.149 ^d	2.43 ^d	
	1	198	7.31 ^c	33.87	26.52	0.239 ^c	2.22 ^c
		297	6.52 ^d	34.02	26.74	0.147 ^d	2.46 ^d
		500	4.97	34.13	27.00	0.051	2.66
		758	4.13	34.32	27.26	0.022	3.04
1020		3.47	34.45	27.42	0.028	1.79 ^b	
1551		2.43	34.54	27.59	0.075	2.41	
2085		1.89	34.61	27.69	0.056	2.61	

INTERPOLATED

	0	12.64	31.89	24.08	0.557	0.505
	10	12.62	31.90	24.09	0.553	0.505
	20	12.45	31.97	24.18	0.554	0.53
	30	12.15	32.23	24.43	0.558	0.57
	50	11.07	32.49	24.83	0.580	0.80
	75	8.96	32.65	25.31	0.573	0.96
	100	8.50	32.76	25.47	0.555	1.11
	150	7.84	33.34	26.02	0.326	1.88
	200	7.29	33.87	26.52	0.228	2.18
	250	6.89	33.99	26.66	0.179	2.33
	300	6.48	34.02	26.74	0.147	2.43
	400	5.67	34.05	26.87	0.082	2.55
	500	4.97	34.13	27.00	0.051	2.66
	600	4.54	34.21	27.13	0.037	2.81
	700	4.25	34.28	27.21	0.026	2.96
	800	4.00	34.35	27.29	0.020	3.06
	1000	3.50	34.44	27.41	0.026	2.95
	1200	3.11	34.49	27.49	0.042	2.76
	1500	2.57	34.54	27.57	0.073	2.45
	2000	1.95	34.60	27.67	0.061	2.58

42° 52'N, 127° 04'W - W of Cape Blanco

17 June 1955 Weather: 02 Barometer: 30.20 in
 Messenger time: 1551 (+8) Sea height: 2 Wind: 270°, 6 kn
 Depth: 1500 fm, 2743 m Visibility: 7 Clouds: 6, amt 7
 Air temperature: dry 56°F, wet 55°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	12.70	32.65	24.66	0.557	0.625
	11	12.24	32.65	24.75	0.560	0.625
	21	11.69	32.68	24.86	0.563	0.625
	32	11.63	32.70	24.90	0.563	0.699
	53	11.22	32.70	24.97	0.545	0.699
	79	9.16	32.79	25.38	0.569	1.03
	104	8.26	32.87	25.58	0.543	1.23
	158	7.92	33.40	26.05	0.420	1.59
	210	7.48 ^a	33.86 ^c	26.47	0.308 ^c	1.73 ^c
	315	5.97	33.93 ^d	26.72	0.218 ^d	1.96 ^d
1	207	7.04 ^b	33.89 ^c	26.57	0.278 ^c	1.90 ^c
	309	6.08	33.95 ^d	26.73	0.193 ^d	2.14 ^d
	522	4.57	34.07	27.01	0.074	2.32
	788	4.02	34.30	27.25	0.016	2.56
	1054	3.39	34.44	27.42	0.022	2.42
	1588	2.39	34.56	27.61	0.041	2.66
	2126	1.86	34.61	27.69	0.087	2.62

INTERPOLATED

	0	12.70	32.65	24.66	0.557	0.62
	10	12.30	32.65	24.73	0.560	0.62
	20	11.81	32.67	24.84	0.563	0.62
	30	11.67	32.70	24.89	0.563	0.70
	50	11.38	32.70	24.94	0.553	0.70
	75	9.90	32.77	25.25	0.566	1.00
	100	8.36	32.86	25.56	0.546	1.20
	150	7.94	33.23	25.93	0.455	1.54
	200	7.59	33.85	26.45	0.357	1.77
	250	6.94	33.91	26.59	0.255	1.92
	300	6.17	33.94	26.72	0.215	2.04
	400	5.20	33.99	26.87	0.137	2.16
	500	4.68	34.05	26.98	0.084	2.29
	600	4.36	34.14	27.10	0.039	2.40
	700	4.20	34.23	27.19	0.022	2.50
	800	3.99	34.31	27.26	0.017	2.55
	1000	3.51	34.41	27.39	0.020	2.44
	1200	3.07	34.49	27.49	0.026	2.44
	1500	2.48	34.55	27.59	0.037	2.60
	2000	1.93	34.60	27.68	0.070	2.65

42° 49'N, 128° 51'W

18 June 1955
 Messenger time: 0729 (+8)
 Depth: 1800 fm, 3292 m

Weather: 02
 Sea height: 2
 Visibility: 9
 Air temperature: dry 52°F, wet 48°F

Barometer: 30.27 in
 Wind: 325°, 4 kn
 Clouds: 6, amt 6

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	12.36	32.81	24.84	0.563	0.588
	11	12.33	32.80	24.85	0.565	0.579
	21	11.88	32.81	24.93	0.576	0.579
	32	11.81	32.80	24.94	0.576	0.579
	53	9.66	32.77	25.29	0.595	0.843
	79	8.60	32.76	25.45	0.585	1.01
	105	8.22	32.81	25.55	0.575	1.10
	158	7.46	33.42	26.12	0.421	1.62
	211	7.58	33.87 ^c	26.47	0.274 ^b	2.11 ^c
	315	6.26	33.95 ^d	26.71	0.208	2.25 ^d
1	206	7.64	33.82 ^c	26.43	0.314 ^a	1.78 ^c
	310	6.36	33.93 ^d	26.67	0.218	2.14 ^d
	520	4.99	34.10	26.98	0.069	2.66
	786	4.02	34.29	27.24	0.022	2.99
	1051	3.37	34.43	27.41	0.011	3.00
	1585	2.39	34.56	27.61	0.074	2.87
	2123	1.87	34.62	27.70	0.015 ^b	2.83

INTERPOLATED

	0	12.36	32.81	24.84	0.563	0.588
	10	12.34	32.80	24.85	0.565	0.579
	20	11.86	32.81	24.93	0.576	0.579
	30	11.82	32.80	24.94	0.576	0.579
	50	10.50	32.77	25.15	0.593	0.800
	75	8.70	32.76	25.44	0.587	1.00
	100	8.28	32.79	25.52	0.577	1.08
	150	7.58	33.34	26.05	0.450	1.52
	200	7.66	33.83	26.43	0.321	1.90
	250	7.01	33.88	26.56	0.271	2.05
	300	6.48	33.93	26.67	0.230	2.16
	400	5.56	34.01	26.85	0.140	2.38
	500	5.04	34.08	26.96	0.077	2.62
	600	4.64	34.16	27.08	0.047	2.79
	700	4.29	34.23	27.16	0.030	2.93
	800	3.98	34.30	27.25	0.20	2.99
	1000	3.48	34.41	27.39	0.12	3.00
	1200	3.00	34.48	27.49	0.20	2.98
	1500	2.50	34.55	27.59	0.65	2.90
	2000	1.95	34.61	27.72	-	2.83

41° 42'N, 130° 33'W

18 June 1955
 Messenger time: 2101 (+8)
 Depth: 1800 fm, 3292 m

Weather: 02
 Sea height: 1
 Visibility: 8
 Air temperature: dry 54°F, wet 50°F

Barometer: 30.19 in
 Wind: 115°, 10 kn
 Clouds: 6, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	12.83	32.83	24.77	0.557	0.665	
	11	12.56	32.82	24.81	0.565	0.645	
	21	12.42	32.83	24.85	0.565	0.582	
	32	12.33	32.83	24.87	0.565	0.525	
	53	12.10	32.82	24.91	0.569	0.660	
	80	9.85	32.79	25.28	0.574	0.982	
	105	9.09	32.84	25.43	0.537	1.18	
	159	8.18	33.53	26.11	0.343	1.85	
	212	7.60 ^c	33.88	26.47	0.216	2.22	
	317	6.66 ^d	34.00	26.69	0.151 ^d	2.40 ^a	
	1	207	7.71 ^c	33.87	26.45	0.226	2.20
		311	6.79 ^d	33.99	26.67	0.165 ^d	1.63 ^b
		522	5.55	34.08	26.89	0.079	2.47
		786	4.30	34.26	27.19	0.028	2.84
1051		3.58	34.39	27.36	0.027	2.90	
1584		2.50	34.52	27.57	0.068	2.70	
2122		1.89	34.61	27.69	0.145	2.81	

INTERPOLATED

	0	12.83	32.82	24.77	0.557	0.665
	10	12.57	32.82	24.81	0.565	0.65
	20	12.44	32.82	24.85	0.565	0.60
	30	12.35	32.83	24.87	0.565	0.54
	50	12.14	32.82	24.91	0.568	0.65
	75	10.20	32.79	25.21	0.573	0.93
	100	9.21	32.82	25.41	0.548	1.14
	150	8.27	33.38	25.98	0.375	1.76
	200	7.73	33.84	26.42	0.237	2.16
	250	7.26	33.94	26.57	0.191	2.34
	300	6.82	33.98	26.66	0.166	2.40
	400	6.18	34.03	26.79	0.121	2.41
	500	5.64	34.07	26.89	0.085	2.45
	600	5.15	34.12	26.99	0.059	2.58
	700	4.69	34.20	27.10	0.037	2.74
	800	4.24	34.26	27.20	0.028	2.84
	1000	3.68	34.37	27.35	0.025	2.91
	1200	3.22	34.44	27.44	0.031	2.83
	1500	2.63	34.51	27.55	0.057	2.72
	2000	2.00	34.60	27.67	0.123	2.79

40° 29'N, 132° 11'W

19 June 1955
 Messenger time: 1322 (+8)
 Depth: 2115 fm, 3867 m

Weather: 01
 Sea height: 2
 Visibility: 6
 Air temperature: dry 58°F, wet 57°F

Barometer: 29.96 in
 Wind: 250°, 4 km
 Clouds: 6, amt 8

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	13.53	32.94	24.72	0.555	0.545
	11	13.07	32.95	24.81	0.558	0.555
	21	12.98	32.97	24.85	0.558	0.565
	32	12.81	32.96	24.88	0.561	0.530
	53	10.71	32.93	25.24	0.591	0.626
	80	9.33	32.83	25.39	0.586	0.881
	106	8.99	32.83	25.44	0.579	0.925
3	155	8.24	33.13	25.80	0.515	1.31
	206	8.13 ^c	33.68 ^c	26.24	0.409 ^c	1.64
	302	6.57	33.92 ^d	26.65	0.277	2.16 ^d
1	206	8.10 ^c	33.71 ^c	26.27	0.393 ^c	1.63
	312	6.45	33.95 ^d	26.69	0.259	2.16 ^d
	525	4.86	34.09	26.98	0.080	2.78
	790	3.96	34.30	27.25	0.031	3.10
	1055	3.34	33.08 ^b	26.35	-	-
	1588	2.43	34.53	27.58	0.080	3.02
	2123	1.86	-	-	-	-

INTERPOLATED

	0	13.53	32.94	24.72	0.555	0.545
	10	13.11	32.95	24.81	0.552	0.54
	20	12.98	32.97	24.85	0.553	0.56
	30	12.86	32.96	24.87	0.562	0.53
	50	11.77	32.93	25.05	0.586	0.60
	75	9.47	32.84	25.38	0.586	0.87
	100	9.03	32.83	25.44	0.572	0.92
	150	8.32	33.08	25.74	0.525	1.25
	200	8.15	33.67	26.23	0.411	1.59
	250	7.52	33.84	26.45	0.350	1.89
	300	6.66	33.93	26.64	0.282	2.12
	400	5.46	34.01	26.86	0.146	2.44
	500	4.98	34.07	26.96	0.086	2.71
	600	4.60	34.14	27.06	0.057	2.89
	700	4.24	34.22	27.17	0.036	3.03
	800	3.94	34.31	27.27	0.31	3.10
	1000	3.47	34.40	27.38	0.30	3.10
	1200	3.08	34.46	27.47	0.40	3.08
	1500	2.58	34.51	27.55	0.68	3.02
	2000	1.95	-	-	-	-

39° 20'N, 133° 41'W

20 June 1955
 Messenger time: 0516 (+8)
 Depth: 2460 fm, 4737 m

Weather: 03
 Sea height: 2
 Visibility: 8
 Air temperature: dry 57°F, wet 57°F

Barometer: 29.83 in
 Wind: 180°, 5 km
 Clouds: 6,7, amt 6

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

3	0	14.22	33.14	24.73	0.535	0.443
	11	14.24	33.14	24.73	0.534	0.457
	21	14.22	33.14	24.73	0.537	0.457
	32	13.92	33.13	24.78	0.540	0.457
	53	11.91	33.22	25.25	0.574	0.457
	79	11.55	33.19	25.28	0.557	0.545
	105	11.07	33.23	25.40	0.538	0.714
	157	9.22	33.24	25.73	0.490	1.18
	209	8.46	33.65 ^c	26.16	0.425	1.52 ^c
	314	7.06	33.93	26.59	0.300	1.57 ^b
1	204	8.45	33.69 ^c	26.21	0.429	1.57 ^c
	304	7.14	33.92	26.59	0.336	1.92 ^a
	510	5.06	34.02	26.91	0.130	2.72
	771	4.14	34.25	27.20	0.031	3.06
	1033	3.41	34.39	27.38	0.025	3.14
	1560	2.43	34.54	27.59	0.071	3.02
2	2100	1.88	34.61	27.69	0.208	3.00

INTERPOLATED

	0	14.22	33.14	24.73	0.535	0.44
	10	14.22	33.14	24.73	0.534	0.45
	20	14.22	33.14	24.73	0.535	0.46
	30	13.99	33.13	24.76	0.538	0.46
	50	12.15	33.22	25.20	0.573	0.46
	75	11.60	33.20	25.29	0.557	0.52
	100	11.17	33.19	25.36	0.540	0.67
	150	9.48	33.23	25.67	0.497	1.11
	200	8.52	33.60	26.12	0.436	1.48
	250	7.90	33.83	26.39	0.374	1.72
	300	7.20	33.92	26.57	0.220	1.90
	400	6.13	33.98	26.76	0.142	2.26
	500	5.15	34.02	26.91	0.117	2.67
	600	4.61	34.10	27.03	0.084	2.92
	700	4.30	34.19	27.13	0.043	3.02
	800	4.07	34.27	27.22	0.029	3.08
	1000	3.52	34.38	27.36	0.024	3.13
	1200	3.00	34.45	27.47	0.034	3.09
	1500	2.52	34.53	27.57	0.062	3.02
	2000	1.97	34.60	27.67	0.169	3.00

37° 55'N, 135° 26'W

20 June 1955
 Messenger time: 2255 (+8)
 Depth: 2650 fm, 4846 m

Weather: 02
 Sea height: 3
 Visibility: 8
 Air temperature: dry 57°F, wet 54°F

Barometer: 29.98 in
 Wind: 355°, 11 km
 Clouds: 8, amt 2

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	15.03	33.21	24.62	0.525	0.476
	11	15.04	33.19	24.60	0.529	0.443
	21	14.62	33.16	24.66	0.531	0.453
	32	14.14	33.16	24.77	0.535	0.453
	53	12.26	33.24	25.19	0.561	0.471
	79	11.56	33.22	25.31	0.555	0.535
	105	11.72	33.30	25.35	0.545	0.481
	159	9.47	33.32	25.75	0.298 ^b	1.16
	211	8.77	33.78	26.21	0.197 ^b	1.52
	317	6.88	34.00 ^d	26.67	0.224	2.08
1	203	8.84	33.64	26.10	0.358	1.46
	302	7.17	33.95 ^d	26.59	0.242	1.93
	511	4.90	34.02	27.93	0.140	2.52
	773	4.14	34.29	27.23	0.018	3.00
	1035	3.34	34.42	27.42	0.023	3.02
	1564	2.50	34.56	27.60	0.092	2.96
	2096	1.90	34.61	27.69	0.178	2.96

INTERPOLATED

	0	15.05	33.21	24.62	0.525	0.476
	10	15.05	33.19	24.60	0.527	0.45
	20	14.62	33.16	24.66	0.530	0.44
	30	14.20	33.16	24.75	0.533	0.44
	50	12.45	33.24	25.16	0.562	0.47
	75	11.55	33.21	25.31	0.557	0.51
	100	11.70	33.28	25.33	0.548	0.49
	150	9.99	33.32	25.66	0.490	1.08
	200	8.87	33.59	26.06	0.365	1.42
	250	8.16	33.89	26.40	0.295	1.72
	300	7.20	33.97	26.60	0.245	1.93
	400	5.81	33.98	26.79	0.175	2.29
	500	4.98	34.01	26.92	0.143	2.49
	600	4.62	34.12	27.04	0.108	2.72
	700	4.34	34.23	27.16	0.043	2.92
	800	4.05	34.30	27.25	0.016	3.01
	1000	3.44	34.41	27.40	0.021	3.02
	1200	3.02	34.45	27.47	0.043	3.02
	1500	2.59	34.54	27.57	0.082	2.98
	2000	1.99	34.52	27.61	0.160	2.96

36° 54'N, 136° 42'W

21 June 1955
 Messenger time: 1025 (+8)
 Depth: 2900 fm, 5303 m

Weather: 02
 Sea height: 3
 Visibility: 8
 Air temperature: dry 58°F, wet 56°F

Barometer: 30.12 in
 Wind: 325°, 12 km
 Clouds: 4, 8, amt 5

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	15.95	33.42	24.56	0.510	0.414
	11	15.94	33.40	24.56	0.513	0.414
	21	15.90	33.41	24.57	0.515	0.399
	32	15.16	33.44	24.75	0.528	0.399
	51	13.34	33.47	25.17	0.553	0.399
	78	12.55	33.46	25.30	0.548	0.399
	102	12.00	33.47	25.43	0.535	0.535
	154	9.99	33.43	25.74	0.500	0.995
	204	9.28	33.76	26.13	0.470	1.23 ^c
	306	7.99	33.97	26.49	0.361	1.90
1	183	9.42	33.64	26.01	-	1.23 ^c
	276	8.30	33.98	26.45	-	1.68
	467	5.31	33.97	26.85	0.212	2.32
	710	3.98	34.20	27.17	0.086	2.88
	960	3.39	34.35	27.35	0.047	3.08
	1473	2.49	34.54	27.58	0.095	2.97
	1990	1.95	34.62	27.69	0.169	3.12

INTERPOLATED

0	15.95	33.42	24.56	0.510	0.41
10	15.93	33.40	24.56	0.512	0.41
20	15.88	33.41	24.57	0.515	0.40
30	15.30	33.43	24.72	0.525	0.39
50	13.42	33.47	25.15	0.552	0.39
75	12.56	33.46	25.31	0.550	0.39
100	12.08	33.47	25.41	0.537	0.52
150	10.15	33.43	25.72	0.504	0.96
200	9.28	33.74	26.11	0.473	1.24
250	8.67	33.93	26.35	0.432	1.51
300	8.02	33.97	26.49	0.370	1.84
400	6.45	33.96	26.70	0.268	2.17
500	4.92	33.97	26.90	0.188	2.39
600	4.37	34.08	27.04	0.133	2.66
700	4.02	34.19	27.16	0.090	2.87
800	3.73	34.27	27.26	0.060	2.98
1000	3.31	34.37	27.38	0.050	3.09
1200	2.93	34.45	27.48	0.066	3.06
1500	2.48	34.55	27.59	0.098	2.96
2000	(1.94)	(34.62)	(27.70)	(0.170)	(3.12)

35° 39'N, 138° 12'W

22 June 1955
 Messenger time: 0345 (+8)
 Depth: 2800 fm, 5029 m

Weather: 01
 Sea height: 3
 Visibility: 8
 Air temperature: dry 60°F, wet 56°F

Barometer: 30.30 in
 Wind: 310°, 12 km
 Clouds: 8, amt 2

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	16.50	33.82	24.75	0.506	0.265
	11	16.53	33.81	24.74	0.509	0.370
	21	16.52	33.80	24.73	0.507	0.245
	32	15.14	33.64	24.92	0.531	0.332
	52	13.74	33.65	25.23	0.541	0.279
	79	13.48	33.71	25.32	0.540	0.318
	105	12.66	33.64	25.42	0.528	0.376
	158	10.85	33.58	25.72	0.495	0.754
	211	10.20	33.87	26.06	0.470 ^c	1.03 ^c
	318	8.31	33.99	26.45	0.375	1.68
1	201	10.27	33.83	26.01	0.470 ^c	1.04 ^c
	303	8.50	33.98	26.41	0.378	1.60
	511	5.36	33.99	26.85	0.164	2.71
	772	4.17	34.22	27.17	0.038	3.34
	1033	3.44	34.41	27.40	0.027	3.34
	1562	2.48	34.58	27.61	0.083	3.21
	2092	1.90	34.61	27.69	0.153	3.08

INTERPOLATED

	0	16.50	33.82	24.75	0.506	0.26
	10	16.53	33.81	24.74	0.508	0.37
	20	16.52	33.80	24.73	0.506	0.25
	30	15.22	33.67	24.92	0.527	0.33
	50	13.80	33.65	25.20	0.540	0.29
	75	13.50	33.71	25.32	0.540	0.30
	100	12.90	33.66	25.40	0.532	0.36
	150	10.98	33.58	25.69	0.500	0.64
	200	10.28	33.83	26.01	0.473	1.00
	250	9.62	33.94	26.22	0.435	1.28
	300	8.58	33.98	26.40	0.382	1.58
	400	6.92	34.00	26.67	0.327	2.14
	500	5.49	34.00	26.84	0.175	2.64
	600	4.86	34.04	26.95	0.093	3.02
	700	4.41	34.14	27.08	0.043	3.26
	800	4.07	34.24	27.19	0.031	3.34
	1000	3.53	34.39	27.37	0.026	3.34
	1200	3.09	34.48	27.48	0.041	3.30
	1500	2.58	34.56	27.59	0.073	3.24
	2000	1.99	34.61	27.68	0.140	3.13

34° 29'N, 139° 29'W

22 June 1955
 Messenger time: 1759 (+8)
 Depth: 2770 fm, 5066 m

Weather: 01
 Sea height: 2
 Visibility: 9
 Air temperature: dry 65°F, wet 60°F

Barometer: 30.47 in
 Wind: 340°, 3 kn
 Clouds: 8, amt 1

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$	
OBSERVED							
2	0	17.68	34.05	24.64	0.504	0.130	
	11	17.07	34.06	24.79	0.510	0.154	
	21	17.02	34.06	24.82	0.506	0.168	
	33	16.90	34.06	24.84	0.508	0.236	
	54	15.79	34.06	25.09	0.520	0.246	
	80	15.16	33.99	25.17	0.524	0.164	
	106	14.91	33.96	25.21	0.512	0.178	
	160	15.02	34.08	25.28	0.515	0.154	
	211	13.15	33.80	25.44	0.491	0.443	
	314	9.08	33.91 ^d	26.27	0.409	1.45	
	1	204	13.89	33.91	25.39	0.510	0.273
		308	9.38	33.93 ^d	26.24	0.416	1.37
		520	5.72	33.98	26.80	0.190	2.56
		786	4.32	34.25	27.18	0.031	3.16
1053		3.56	34.43	27.39	0.034	3.33	
1587		2.52	34.58	27.61	0.095	3.14	
2122		1.90	34.61	27.69	0.159	3.04	

INTERPOLATED

0	17.68	34.05	24.64	0.504	0.13
10	17.09	34.06	24.79	0.510	0.15
20	17.02	34.06	24.82	0.505	0.16
30	16.95	34.06	24.84	0.507	0.22
50	16.05	34.06	24.97	0.518	0.24
75	15.30	34.00	25.15	0.522	0.20
100	14.99	33.96	25.19	0.517	0.16
150	14.98	34.07	25.28	0.514	0.16
200	14.19	33.94	25.35	0.512	0.25
250	11.10	33.85	25.88	0.457	0.86
300	9.57	33.91	26.19	0.422	1.28
400	7.37	33.95	26.56	0.305	2.00
500	6.03	33.97	26.76	0.209	2.47
600	5.23	34.04	26.91	0.120	2.78
700	4.70	34.15	27.06	0.058	3.00
800	4.27	34.26	27.19	0.030	3.17
1000	3.68	34.41	27.37	0.028	3.32
1200	3.20	34.48	27.47	0.031	3.30
1500	2.67	34.56	27.58	0.077	3.18
2000	2.03	34.61	27.68	0.150	3.05

33° 35'N, 141° 05'W

23 June 1955

Messenger time: 0634 (+8)

Depth: 2770 fm, 5066 m

Weather: 02

Sea height: 2

Visibility: 9

Air temperature: dry 62°F, wet 59°F

Barometer: 30.52 in

Wind: 090°, 1 kn

Clouds: 8, amt 1

Cast no.	Depth m	T °C	S o/oo	Density σ _t	O ₂ mg-at/L	PO ₄ -P μg-at/L
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OBSERVED

2	0	17.88	34.10	24.63	0.500	0.178	
	11	17.82	34.10	24.65	0.500	0.188	
	21	17.49	34.09	24.71	0.497	0.193	
	32	17.03	34.07	24.82	0.509	0.178	
	53	15.61	34.00	25.09	0.524	0.178	
	80	15.33	33.98	25.14	0.525	0.159	
	106	15.04	33.98	25.20	0.519	0.125	
	160	14.80	34.04	25.29	0.495	0.289	
	212	10.96	33.77 ^c	25.84	0.470	0.847	
	318	9.14 ^d	34.08 ^d	26.40	0.406 ^d	1.47	
	1	206	11.32	33.71 ^c	25.74	0.476	0.760
		308	9.17 ^d	34.04 ^d	26.35	0.402 ^d	1.41
		518	5.66	33.96	26.79	0.202	2.50
782		4.18	34.24	27.18	0.034	3.12	
1045		3.51	34.43	27.40	0.033	3.19	
1577		2.50	34.58	27.61	0.098	3.12	
2109		1.90	34.62	27.70	0.163	3.07	

INTERPOLATED

0	17.86	34.10	24.63	0.500	0.18
10	17.82	34.10	24.64	0.500	0.19
20	17.48	34.10	24.71	0.497	0.19
30	17.15	34.08	24.79	0.504	0.18
50	16.00	34.01	25.03	0.520	0.18
75	15.39	33.98	25.12	0.524	0.16
100	15.11	33.98	25.18	0.520	0.14
150	14.85	34.03	25.27	0.500	0.24
200	12.00	33.80	25.67	0.481	0.62
250	10.33	33.87	26.05	0.442	1.14
300	9.37	34.06	26.34	0.413	1.38
400	7.61	34.02	26.58	0.339	1.86
500	5.83	33.97	26.78	0.224	2.39
600	5.05	34.01	26.91	0.117	2.78
700	4.56	34.13	27.05	0.056	2.98
800	4.12	34.26	27.21	0.033	3.13
1000	3.61	34.41	27.38	0.027	3.19
1200	3.13	34.49	27.49	0.038	3.19
1500	2.60	34.56	27.59	0.083	3.13
2000	1.99	34.64	27.70	0.185	3.06

35° 07'N, 142° 49'W

24 June 1955
 Messenger time: 0306 (+8)
 Depth: 2940 fm, 5376 m

Weather: 02
 Sea height: 0
 Visibility: 9
 Air temperature: dry 66°F, wet 62°F

Barometer: 30.52 in
 Wind: 035°, 2 kn
 Clouds: 8, amt 1

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L	
OBSERVED							
2	0	18.22	34.09	24.54	0.491	0.346	
	11	17.47	34.08	24.71	0.499	0.332	
	21	17.30	34.06	24.74	0.501	0.337	
	32	16.87	34.04	24.82	0.510	0.332	
	53	14.92	33.93	25.19	0.531	0.346	
	80	14.30	33.93	25.31	0.530	0.274	
	106	13.84	33.90	25.40	0.525	0.327	
	160	11.48	33.71	25.70	0.499	0.780	
	213	10.88 ^c	33.92	25.98	0.469 ^c	0.980 ^c	
	318	8.88 ^d	34.05	26.41	0.400 ^d	1.69	
	1	207	10.92 ^c	33.87	25.94	0.466 ^c	0.996 ^c
		310	8.90 ^d	34.05	26.41	0.390 ^d	1.58
		524	5.40	34.02	26.88	0.176	2.61
		788	4.10	34.25	27.20	0.057	3.12
1053		3.43	34.43	27.41	0.040	3.14	
1587		2.50	34.55	27.59	0.083	3.00	
2121		1.89	34.63	27.70	0.151	2.91	

INTERPOLATED

0	18.22	34.09	24.54	0.491	0.35
10	17.48	34.08	24.71	0.498	0.34
20	17.32	34.06	24.74	0.501	0.35
30	17.00	34.05	24.80	0.506	0.34
50	15.20	33.96	25.15	0.531	0.35
75	14.39	33.93	25.29	0.531	0.28
100	13.98	33.91	25.37	0.527	0.31
150	12.00	33.73	25.62	0.505	0.71
200	11.01	33.83	25.88	0.475	0.94
250	10.12	34.00	26.17	0.440	1.20
300	9.16	34.04	26.36	0.404	1.50
400	7.23	34.05	26.66	0.331	2.23
500	5.60	34.02	26.85	0.218	2.55
600	4.92	34.06	26.96	0.121	2.82
700	4.45	34.15	27.09	0.077	3.02
800	4.07	34.26	27.21	0.058	3.13
1000	3.55	34.40	27.37	0.040	3.14
1200	3.10	34.47	27.48	0.049	3.13
1500	2.62	34.53	27.56	0.074	3.04
2000	1.99	34.61	27.68	0.130	2.92

36° 25'N, 144° 37'W

24 June 1955
 Messenger time: 2229 (+8)
 Depth: 2900 fm, 5303 m

Weather: 02
 Sea height: 1
 Visibility: 9
 Air temperature: dry 66°F, wet 64°F

Barometer: 30.41 in
 Wind: 260°, 11 km
 Clouds: , amt 0

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	17.88	33.86	24.44	0.495	0.327	
	11	17.85	33.85	24.46	0.501	0.308	
	21	17.26	33.78	24.53	0.505	0.278	
	32	15.90	33.81	24.88	0.531	0.288	
	53	13.30	33.58	25.25	0.546	0.342	
	79	12.94	33.68	25.41	0.540	0.342	
	105	12.44	33.68	25.51	0.529	0.452	
	158	11.10	33.66	25.74	0.516	0.717	
	207	10.49 ^c	34.02 ^c	26.12	0.467	1.08	
	312	8.66 ^d	33.89 ^d	26.31	0.400 ^d	1.60 ^d	
	1	201	10.45 ^c	33.87 ^c	26.02	0.470	1.03
		302	8.75 ^d	34.02 ^d	26.40	0.399 ^d	1.51 ^d
508		5.40	33.96	26.83	0.225	2.40	
768		3.98	34.16	27.14	0.065	3.00	
1031		3.32	34.36	27.37	0.024	3.09	
1561		2.52	34.53	27.57	0.076	2.90	
2093		1.93	34.61	27.69	0.148	2.71	

INTERPOLATED

0	17.87	33.86	24.44	0.496	0.33
10	17.86	33.85	24.46	0.501	0.32
20	17.56	33.79	24.40	0.505	0.28
30	16.30	33.80	24.78	0.528	0.29
50	13.90	33.59	25.14	0.547	0.33
75	12.99	33.67	25.39	0.542	0.33
100	12.55	33.68	25.48	0.532	0.42
150	11.30	33.66	25.70	0.518	0.66
200	10.49	33.92	26.05	0.473	1.02
250	9.68	33.95	26.21	0.437	1.29
300	8.85	33.95	26.34	0.404	1.52
400	7.08	33.94	26.60	0.317	1.96
500	5.50	33.95	26.80	0.232	2.38
600	4.71	34.02	26.96	0.160	2.70
700	4.25	34.09	27.06	0.098	2.90
800	3.88	34.17	27.16	0.051	3.03
1000	3.39	34.34	27.34	0.013	3.09
1200	2.99	34.44	27.46	0.022	3.05
1500	2.58	34.52	27.56	0.064	2.93
2000	2.04	34.59	27.56	0.116	2.73

37° 32'N, 142° 57'W

25 June 1 955 Weather: 02 Barometer: 30.31 in
 Messenger time: 1612 (+8) Sea height: 2 Wind: 270°, 12 kn
 Depth: 2800 fm, 5121 m Visibility: 7 Clouds: 5, amt 9
 Air temperature: dry 72°F, wet 68°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	17.53	33.82	24.51	0.506	0.322
	11	17.39	33.80	24.52	0.507	0.385
	21	16.86	33.82	24.65	0.513	0.303
	31	15.34	33.83	25.02	0.540	0.443
	52	14.17	33.89	25.31	0.552	0.346
	78	12.97	33.82	25.50	0.550	0.361
	104	11.39	33.64	25.67	0.545	0.655
	154	10.54	33.83	25.97	0.489	0.986
	205	9.89 ^c	34.04 ^c	26.24	0.465 ^c	1.30
	306	8.26 ^d	34.03 ^d	26.48	0.390 ^d	1.67
1	204	9.81 ^c	33.99 ^c	26.21	0.460 ^c	1.30
	304	8.12 ^d	34.02 ^d	26.51	0.382 ^d	1.66
	513	5.19	33.97	26.86	0.246	2.36
	776	3.76	34.20	27.19	0.089	2.89
	1039	3.15	34.37	27.39	0.034	2.96
	1570	2.35	34.51	27.57	0.059	3.03
	2100	1.88	34.61	27.69	0.197	2.88

INTERPOLATED

	0	17.54	33.82	24.51	0.506	0.32
	10	17.39	33.80	24.52	0.507	0.38
	20	17.10	33.82	24.65	0.510	0.31
	30	15.40	33.83	25.00	0.522	0.40
	50	14.24	33.89	25.30	0.552	0.36
	75	13.00	33.83	25.50	0.551	0.35
	100	11.56	33.65	25.64	0.547	0.58
	150	10.61	33.81	25.94	0.507	0.95
	200	9.94	34.00	26.20	0.463	1.27
	250	9.14	34.03	26.36	0.440	1.49
	300	8.30	34.02	26.48	0.390	1.65
	400	6.56	34.00	26.71	0.311	1.99
	500	5.33	33.97	26.85	0.253	2.31
	600	4.63	34.02	26.96	0.190	2.60
	700	4.08	34.12	27.10	0.127	2.81
	800	3.69	34.22	27.22	0.078	2.90
	1000	3.21	34.35	27.37	0.035	2.96
	1200	2.89	34.42	27.46	0.035	2.99
	1500	2.43	34.50	27.56	0.053	3.06
	2000	1.92	34.60	27.68	0.165	2.94

38° 33'N, 141° 31'W

26 June 1955
 Messenger time: 0317 (+8)
 Depth: 2900 fm, 5303 M

Weather: 02
 Sea height: 2
 Visibility: 7
 Air temperature: dry 61°F, wet 59°F

Barometer: 30.27 in
 Wind: 290°, 10 km
 Clouds: 5, amt 9

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	16.64	33.37	24.38	0.514	0.457	
	11	16.60	33.39	24.39	0.515	0.400	
	21	15.91	33.39	24.55	0.524	0.409	
	32	12.45	33.30	25.21	0.575	0.447	
	53	12.01	33.31	25.30	0.551	0.487	
	79	11.62	33.35	25.40	0.545	0.465	
	104	11.56	33.36	25.41	0.544	0.526	
	157	11.68	33.50	25.50	0.543	0.526	
	210	10.17	33.43	25.71	0.519 ^c	0.935	
	315	7.58	33.91	26.50	0.200	0.248	
	1	204	10.48	33.41	25.65	0.515 ^c	0.875
		305	7.65	33.91	26.50	0.215	2.38
		512	6.37	34.04	26.76	0.147	2.64
		771	4.22	34.19	27.14	0.077	3.10
1032		3.46	34.38	27.36	0.025	3.16	
1560		2.50	34.55	27.59	0.108	3.10	
2089	1.96	34.61	27.68	0.172	2.97		

INTERPOLATED

0	16.64	33.37	24.38	0.514	0.46
10	16.60	33.39	24.39	0.515	0.41
20	16.40	33.39	24.44	0.522	0.41
30	13.50	33.31	25.01	0.532	0.43
50	12.08	33.31	25.28	0.549	0.49
75	11.65	33.34	25.38	0.545	0.48
100	11.58	33.36	25.41	0.544	0.52
150	11.68	33.49	25.49	0.543	0.52
200	10.83	33.41	25.60	0.522	0.86
250	8.18	33.72	26.26	0.350	1.46
300	7.69	33.90	26.48	0.223	2.28
400	7.03	33.96	26.62	0.168	2.58
500	6.42	34.03	26.75	0.149	2.63
600	5.63	34.09	26.90	0.125	2.72
700	4.67	34.15	27.06	0.094	2.92
800	4.15	34.21	27.17	0.068	3.09
1000	3.57	34.36	27.34	0.027	3.16
1200	3.02	34.46	27.48	0.040	3.15
1500	2.57	34.54	27.57	0.097	3.11
2000	2.04	34.60	27.67	0.162	2.99

39° 21'N, 140° 28'W

26 June 1955
 Messenger time: 1409 (+8)
 Depth: 2800 fm, 5121 m

Weather: 02
 Sea height: 2
 Visibility: 8
 Air temperature: dry 68°F, wet 62°F

Barometer: 30.26 in.
 Wind: 285°, 12 km.
 Clouds: 6, amt, 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$	
OBSERVED							
2	0	16.44	33.51	24.53	0.521	0.400	
	11	15.81	33.51	24.67	0.530	0.456	
	21	15.60	33.49	24.70	0.530	0.409	
	32	14.95	33.48	24.82	0.543	0.394	
	52	12.16	33.44	25.36	0.571	0.466	
	79	11.53	33.50	25.54	0.551	0.530	
	104	11.10	33.48	25.59	0.541	0.669	
	156	9.75	33.68	25.97	0.543	1.13	
	207	8.98 ^c	33.84	26.23	0.494 ^c	1.32 ^c	
	310	7.78	34.00 ^d	26.54	0.411 ^d	1.79	
	1	195	9.34 ^c	33.79	26.15	0.490 ^c	1.20 ^c
		292	8.16	34.01 ^d	26.49	0.411 ^d	1.65
		494	5.08	33.96	26.86	0.242	2.54
		745	3.84	34.20	27.19	0.087	3.14
1003		3.27	34.36	27.37	0.062	3.30	
1530		2.46	34.52	27.57	0.086	3.24	
2066	1.96	34.62	27.69	0.177	3.06		

INTERPOLATED

0	16.45	33.51	24.53	0.521	0.40
10	15.90	33.51	24.65	0.529	0.46
20	15.63	33.49	24.69	0.530	0.42
30	15.20	33.48	24.78	0.540	0.39
50	12.34	33.45	25.34	0.571	0.45
75	11.60	33.50	25.52	0.553	0.51
100	11.18	33.48	25.58	0.542	0.64
150	9.89	33.65	25.94	0.543	1.10
200	9.18	33.81	26.28	0.492	1.27
250	8.66	33.94	26.36	0.447	1.44
300	8.00	34.01	26.52	0.409	1.70
400	5.99	33.98	26.77	0.328	2.21
500	5.03	33.96	26.87	0.237	2.56
600	4.43	34.05	27.01	0.158	2.84
700	3.98	34.16	27.14	0.105	3.06
800	3.69	34.24	27.23	0.072	3.21
1000	3.26	34.36	27.37	0.062	3.30
1200	2.91	34.44	27.47	0.063	3.29
1500	2.49	34.51	27.56	0.082	3.25
2000	2.00	34.60	27.67	0.164	3.09

40° 33'N, 139° 05'W

27 June 1955 Weather: 52 Barometer: 30.17 in
 Messenger time: 0422 (+8) Sea height: 1 Wind: 250°, 12 kn
 Depth: 2360 fm, 4316 m Visibility: 6 Clouds: 6, amt 9
 Air temperature: dry 59°F, wet 59°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	14.29	33.22	24.77	0.546	0.423	
	11	14.30	33.22	24.77	0.550	0.456	
	21	14.26	33.22	24.77	0.552	0.434	
	32	13.90	33.21	24.85	0.557	0.447	
	53	12.82	33.61	25.38	0.577	0.356	
	80	11.92	33.62	25.56	0.550	0.447	
	105	10.93	33.49 ^b	25.74	0.552	0.640	
	158	9.91	33.63	25.91	0.505	0.977	
	210	8.95 ^c	33.87	26.26	0.486 ^c	1.26 ^c	
	315	7.71	33.99	26.54	0.378 ^d	1.69	
	1	200	8.93 ^c	33.87	26.27	0.480 ^c	1.30 ^c
		302	7.88	33.97	26.50	0.378 ^d	1.63
		508	4.89	33.96	26.88	0.200	2.49
		767	3.72	34.23	27.22	0.048	3.00
1031		3.15	34.35	27.37	0.027	3.06	
1559		2.34	34.50	27.57	0.061	2.95	
2088		1.94	34.60	27.68	0.147	2.92	

INTERPOLATED

0	14.29	33.22	24.77	0.546	0.42
10	14.30	33.22	24.77	0.548	0.45
20	14.27	33.22	24.77	0.552	0.43
30	14.05	33.21	24.82	0.557	0.44
50	12.97	33.59	25.32	0.576	0.36
75	12.10	33.62	25.52	0.552	0.42
100	11.20	33.62	25.69	0.552	0.60
150	10.03	33.63	25.90	0.510	0.75
200	9.05	33.87	26.25	0.485	1.24
250	8.38	33.90	26.38	0.450	1.44
300	7.90	33.97	26.50	0.387	1.62
400	6.22	33.98	26.74	0.285	2.06
500	4.94	33.95	26.88	0.206	2.46
600	4.39	34.02	26.99	0.160	2.76
700	3.97	34.14	27.12	0.077	2.95
800	3.63	34.26	27.25	0.038	3.03
1000	3.20	34.34	27.36	0.027	3.06
1200	2.88	34.40	27.44	0.030	3.03
1500	2.43	34.48	27.54	0.054	4.95
2000	1.96	34.59	27.66	0.063	4.93

41° 42'N, 137° 23'W

27 June 1955 Weather: 02 Barometer: 30.30 in
 Messenger time: 1842 (+8) Sea height: 2 Wind: 345°, 16 kn
 Depth: 2145 fm, 3922 m Visibility: 7 Clouds: 6, amt 7
 Air temperature: dry 55°F, wet 52°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	13.83	33.09	24.77	0.549	0.447
	11	13.83	33.07	24.76	0.549	0.457
	21	13.82	33.08	24.77	0.549	0.496
	32	13.65	33.08	24.81	0.555	0.496
	53	10.09	33.03	25.42	0.590	0.688
	80	9.98	33.04	25.44	0.574	0.771
	106	9.72	33.09	25.53	0.565	1.19
	159	8.50	33.28	25.86	0.519	1.25
	210	8.04 ^c	33.73	26.30	0.434 ^d	1.65
	313	6.71	33.93	26.63	0.264 ^d	2.30 ^d
1	206	8.03 ^c	33.66	26.25	0.439	1.58
	303	6.81	33.92	26.62	0.270 ^d	2.12 ^d
	505	5.34	34.07	26.93	0.105	2.82
	772	4.15	34.23	27.17	0.035	3.14
	1037	3.46	34.40	27.38	0.027	3.14
	1572	2.39	34.49	27.55	0.046	3.06
	2111	1.91	34.61	27.69	0.151	3.04

INTERPOLATED

	0	13.83	33.09	24.77	0.549	0.45
	10	13.83	33.07	24.76	0.549	0.46
	20	13.82	33.08	24.77	0.549	0.50
	30	13.75	33.08	24.78	0.553	0.50
	50	10.50	33.04	25.36	0.588	0.65
	75	9.99	33.04	25.44	0.572	0.77
	100	9.82	33.07	25.51	0.568	1.15
	150	8.60	33.24	25.82	0.532	1.23
	200	8.16	33.57	26.15	0.450	1.50
	250	7.38	33.84	26.48	0.358	1.94
	300	6.84	33.92	26.62	0.279	2.15
	400	6.02	34.01	26.79	0.167	2.43
	500	5.38	34.06	26.91	0.108	2.61
	600	4.84	34.10	27.01	0.076	2.80
	700	4.40	34.18	27.11	0.048	3.02
	800	4.05	34.25	27.21	0.034	3.15
	1000	3.78	34.38	27.33	0.028	3.14
	1200	3.15	34.45	27.45	0.027	3.13
	1500	2.56	34.48	27.52	0.039	3.08
	2000	1.93	34.58	27.66	0.114	3.04

42° 51'N, 135° 40'W

28 June 1955
 Messenger time: 0933 (+8)
 Depth: 2160 fm, 3949 m

Weather: 02
 Seaheight: 2
 Visibility: 8
 Air temperature: dry 54°F, wet 51°F

Barometer: 30.30 in
 Wind: 305°, 16 km
 Clouds: 5,6, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	13.17	33.03	24.85	0.556	0.631
	11	13.16	33.04	24.86	0.556	0.569
	21	13.16	33.05	24.87	0.555	0.574
	32	13.15	33.09	24.89	0.554	0.559
	52	10.04	33.09	25.48	0.598	0.795
	79	9.47	33.10	25.57	0.575	0.930
	105	9.03	33.04	25.61	0.575	1.022
	158	8.40	33.52	26.07	0.503	1.385
	211	7.89 ^c	33.81	26.37	0.439	1.65
	316	5.83	33.87 ^d	26.71	0.286	2.35
1	195	7.95 ^c	33.79	26.34	0.456	1.58
	294	6.36	33.89 ^d	26.64	0.330	2.11
	494	4.57	34.01	26.96	0.134	2.82
	746	3.80	34.24	27.22	0.046	3.02
	1004	3.34	34.36	27.37	0.061	3.22
	1527	2.40	34.52	27.58	0.082	3.12
	2055	1.91	34.59	27.67	0.171	3.02

INTERPOLATED

	0	13.17	33.03	24.85	0.556	0.63
	10	13.16	33.04	24.86	0.556	0.57
	20	13.16	33.05	24.87	0.555	0.57
	30	13.15	33.09	24.89	0.554	0.56
	50	10.70	33.09	25.36	0.594	0.79
	75	9.55	33.10	25.56	0.576	0.91
	100	9.12	33.05	25.60	0.575	1.01
	150	8.48	33.42	25.98	0.517	1.30
	200	7.94	33.80	26.36	0.452	1.60
	250	7.33	33.85	26.49	0.397	1.80
	300	6.16	33.88	26.66	0.320	2.21
	400	5.05	33.93	26.84	0.202	2.67
	500	4.54	34.02	26.98	0.132	2.83
	600	4.19	34.12	27.07	0.086	2.91
	700	3.92	34.21	27.19	0.052	2.99
	800	3.70	34.27	27.26	0.047	3.05
	1000	3.36	34.36	27.36	0.061	3.22
	1200	3.01	34.43	27.45	0.064	3.21
	1500	2.47	34.52	27.57	0.079	3.14
	2000	1.94	34.58	27.66	0.157	3.02

STATION 108-35

-43-

44° 04' N, 134° 01' W

28 June 1955
 Messenger time: 0222 (+8)
 Depth: 2070 fm, 3786 m

Weather: 51
 Sea height: 3
 Visibility: 7
 Air temperature: dry 54°F, wet 54°F

Barometer: 30.13 in
 Wind: 280°, 16 km
 Clouds: 6, amt 8

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$	
OBSERVED							
3	0	11.89	32.84	24.95	0.585	0.745	
	12	11.91	32.82	24.94	0.578	0.760	
	24	11.91	32.82	24.94	0.583	0.760	
	37	10.78	32.84	25.15	0.590	0.819	
	60	8.18	32.84	25.57	0.613	1.09	
	90	8.24	32.92	25.64	0.600	1.12	
	119	7.93	32.93	25.68	0.585	1.23	
	179	7.65	33.62	26.28	0.505	1.50	
	239	7.39	33.91	26.53	0.389	1.78	
	359	5.43	33.91 ^c	26.79	0.246	2.38	
	1, 2	231	7.50	33.91	26.51	0.397	1.76
		346	5.60	33.88 ^c	26.74	0.262	2.25
		580	4.12	34.09	27.07	0.085	2.88
		886	3.34	34.27	27.30	0.036	3.02
1192		2.97	34.45	27.47	0.033	3.08	
1803		2.07	34.56	27.63	0.108	2.87	
2403		1.75	34.62	27.71	0.171	2.66	

INTERPOLATED

0	11.89	32.84	24.95	0.585	0.74
10	11.91	32.82	24.94	0.578	0.76
20	11.91	32.82	24.94	0.581	0.76
30	11.89	32.83	24.94	0.586	0.78
50	8.81	32.84	25.48	0.604	1.00
75	8.16	32.87	25.60	0.606	1.10
100	8.23	32.93	25.63	0.595	1.15
150	7.68	33.26	25.97	0.555	1.36
200	7.64	33.77	26.38	0.431	1.61
250	7.22	33.91	26.56	0.367	1.82
300	6.37	33.90	26.67	0.317	2.02
400	5.05	33.91	26.83	0.198	2.36
500	4.44	34.02	26.98	0.129	2.78
600	4.05	34.10	27.09	0.076	2.90
700	3.77	34.14	27.14	0.052	2.96
800	3.52	34.20	27.22	0.041	2.99
1000	3.17	34.34	27.36	0.033	3.06
1200	2.94	34.45	27.48	0.033	3.08
1500	2.52	34.53	27.57	0.060	3.03
2000	1.83	34.56	27.66	0.131	2.79

45° 29'N, 131° 48'W

29 June 1955
 Messenger time: 2014 (+8)
 Depth: 1800 fm, 3292 m

Weather: 02
 Sea height: 4
 Visibility: 7
 Air temperature: dry 52°F, wet 50°F

Barometer: 30.05 in
 Wind: 287°, 19 kn
 Clouds: 6, amt 8

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	12.10	32.71	24.82	0.416	0.746	
	11	12.12	32.72	24.83	0.441	0.766	
	21	12.12	32.70	24.81	0.560	0.775	
	32	12.10	32.73	24.83	0.550	0.742	
	53	9.86	32.76	25.24	0.600	0.990	
	80	8.08	32.83	25.58	0.570	1.26	
	105	7.49	32.83	25.66	0.546	1.27	
	158	7.22	33.49	26.23	0.384	1.76	
	210	7.03	33.85	26.54	0.257	2.14	
	314	5.88	33.95 ^c	26.76	0.167	2.52 ^c	
	1	195	7.18	33.80	26.47	0.236	2.04
		293	6.03	33.95 ^c	26.74	0.177	2.36 ^c
		493	4.64	34.10	27.03	0.068	2.76
		744	4.02	34.28	27.23	0.019	3.00
1002		3.35	34.39	27.38	0.020	3.09	
1523		2.39	34.32 ^b	27.42	0.026	3.00	
2052		1.89	34.57	27.66	0.116	2.92	

INTERPOLATED

	0	12.10	32.71	24.82	0.416	0.75
	10	12.12	32.72	24.83	0.441	0.77
	20	12.12	32.70	24.81	0.558	0.77
	30	12.11	32.73	24.83	0.553	0.74
	50	10.54	32.76	25.14	0.597	0.94
	75	8.25	32.83	25.55	0.575	1.22
	100	7.60	32.83	25.65	0.550	1.26
	150	7.26	33.33	26.09	0.414	1.70
	200	7.14	33.82	26.50	0.258	2.08
	250	6.53	33.90	26.64	0.211	2.28
	300	5.98	33.94	26.74	0.175	2.42
	400	5.21	34.03	26.90	0.116	2.62
	500	4.62	34.11	27.04	0.066	2.77
	600	4.38	34.18	27.12	0.033	2.85
	700	4.13	34.25	27.20	0.020	2.96
	800	3.88	34.31	27.27	0.019	3.04
	1000	3.37	34.38	27.37	0.020	3.09
	1200	2.86	34.40	27.44	0.020	3.08
	1500	2.42	34.43	27.50	0.025	3.01
	2000	1.94	34.46	27.57	0.103	2.93

47° 00'N, 129° 21'W

30 June 1955
 Messenger time: 1513 (+8)
 Depth: 1375 fm, 2509 m

Weather: O2
 Sea height: 4
 Visibility: 8
 Air temperature: dry 55°F, wet 52°F

Barometer: 30.02 in
 Wind: 300°, 12 km
 Clouds: 6, amt 6

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	11.93	32.29	24.53	0.594	0.594
	11	11.95	32.30	24.52	0.595	0.570
	21	10.45	32.48	24.94	0.617	0.772
	31	9.82	32.55	25.10	0.611	0.845
	51	8.09	32.57	25.38	0.619	1.05
	75	7.30	32.66	25.56	0.605	1.19
	99	6.94	32.93	25.82	0.525	1.57
	147	7.04	33.66	26.40	0.353	1.98
	198	6.59	33.87	26.61	0.278 ^c	2.20
	1	190	6.65	33.86	26.60	0.276 ^c
287		5.64	33.94	26.78	0.192	2.47
483		4.50	34.02	26.98	0.153	2.76
730		4.09	34.25	27.20	0.049	3.14
985		3.35	34.36	27.36	0.047	3.14
1506		2.46	34.50	27.55	0.099	2.99
2026		1.86	34.58	27.66	0.126	2.99

INTERPOLATED

0	11.93	32.29	24.53	0.594	0.59
10	11.95	32.30	24.52	0.595	0.57
20	10.92	32.40	24.79	0.616	0.77
30	9.93	32.54	25.06	0.612	0.83
50	8.13	32.57	25.37	0.618	1.02
75	7.30	32.62	25.53	0.608	1.20
100	6.92	32.96	25.85	0.515	1.57
150	7.03	33.68	26.41	0.346	1.99
200	6.57	33.87	26.61	0.269	2.20
250	6.00	33.92	26.72	0.213	2.36
300	5.52	33.94	26.80	0.187	2.50
400	4.78	33.99	26.92	0.168	2.63
500	4.48	34.03	26.98	0.149	2.79
600	4.31	34.14	27.09	0.093	2.99
700	4.13	34.23	27.18	0.053	3.12
800	3.91	34.29	27.25	0.047	3.13
1000	3.31	34.36	27.37	0.48	3.13
1200	2.86	34.43	27.46	0.061	3.10
1500	2.38	34.49	27.55	0.097	2.99
2000	1.87	34.58	27.66	0.126	2.99

48° 36'N, 126° 53'W - SW of Amphitrite Point

1 July 1955
 Messenger time: 1030 (+8)
 Depth: 1090 fm, 1994 m

Weather: 01
 Sea height: 3
 Visibility: 8
 Air temperature: dry 52°F, wet 50°F

Barometer: 30.01 in
 Wind: 295°, 15 kn
 Clouds: 8, amt 2

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	11.68	32.24	24.52	0.598	0.636	
	11	11.64	32.25	24.55	0.598	0.622	
	21	11.30	32.21	24.58	0.607	0.820	
	32	9.49	32.26	24.92	0.578	0.965	
	53	8.58	32.39	25.16	0.574	1.19	
	80	7.13	32.72	25.64	0.544	1.53	
	106	7.30	33.38	26.13	0.372	2.03	
	159	7.08	33.81	26.49	0.300	2.30	
	212	6.53	33.91 ^c	26.65	0.209	2.44 ^c	
	317	5.60	33.96 ^d	26.80	0.163	2.68 ^d	
	1	202	6.60	33.92 ^c	26.64	0.214	2.48 ^c
		305	5.70	33.94 ^d	26.77	0.167	2.58 ^d
		516	4.75	34.12	27.02	0.061	3.09
		782	3.98	34.29	27.24	0.025	3.26
1045		3.31	34.38	27.38	0.032	3.16	
	1577	2.32	34.52	27.59	0.068	3.16	

INTERPOLATED

	0	11.68	32.24	24.52	0.598	0.64
	10	11.64	32.25	24.55	0.598	0.62
	20	11.35	32.22	24.57	0.606	0.80
	30	9.76	32.25	24.88	0.583	0.92
	50	8.68	32.37	25.13	0.574	1.16
	75	7.17	32.64	25.59	0.550	1.43
	100	7.28	33.26	26.03	0.491	1.96
	150	7.10	33.77	26.46	0.355	2.26
	200	6.63	33.90	26.62	0.217	2.44
	250	6.20	33.93	26.70	0.189	2.54
	300	5.75	33.94	26.77	0.170	2.62
	400	5.18	34.02	26.90	0.112	2.81
	500	4.80	34.11	27.02	0.66	3.06
	600	4.47	34.18	27.10	0.042	3.16
	700	4.19	34.24	27.18	0.028	3.23
	800	3.92	34.29	27.25	0.025	3.25
	1000	3.43	34.36	27.36	0.029	3.17
	1200	2.96	34.42	27.45	0.038	3.16
	1500	2.45	34.45	27.51	0.057	3.16

48° 39'N, 126° 22'W - SW of Amphitrite Point

1 July 1955
 Messenger time: 1945 (+8)
 Depth: 324 fm, 592 m

Weather: 01 Barometer: 30.08 in.
 Sea height: 2 Wind: 300°, 8 kn.
 Visibility: 8 Clouds: 0,8, amt. 1
 Air temperature: dry 52°F, wet 50°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1, 2	0	11.76	32.11	24.41	0.301	0.285
	10	11.78	32.10	24.40	0.274	0.717
	20	10.59	32.15	24.63	0.281	0.909
	40	7.54	32.57	25.46	0.202	1.75
3	59	7.04	33.02	25.89	0.171	2.25
	72	6.86	33.39	26.19	0.139	2.42
	94	7.05	33.77	26.48	0.146	2.37
	143	6.54	33.90	26.64	0.090	2.48
	190	6.10	33.96	26.74	0.090	2.67
	294	5.46	34.00	26.84	0.078	2.90

INTERPOLATED

	0	11.76	32.11	24.41	0.302	0.78
	10	11.78	32.10	24.40	0.273	0.71
	20	10.59	32.15	24.63	0.282	0.91
	30	8.36	32.35	25.16	0.242	1.40
	50	7.23	32.86	25.73	0.182	2.00
	75	6.87	33.49	25.80	0.138	2.42
	100	7.04	33.80	26.51	0.137	2.37
	150	6.49	33.91	26.65	0.090	2.51
	200	6.03	33.96	26.75	0.090	2.90
	250	5.67	33.99	26.81	0.087	2.82

48° 46'N, ^{126°} 05'W - SW of Amphitrite Point

2 July 1955
 Messenger time: 0120 (+8)
 Depth: 50 fm, 91.4 m

Weather: 02
 Sea height: 2
 Visibility: 8
 Air temperature: dry 52°F, wet 51°F

Barometer: 30.08 in
 Wind: 280°, 12 kn
 Clouds: , amt 0

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	11.78	31.89	24.23	0.800	0.457
	10	11.20	32.20	24.58	0.760	0.414
	20	7.94	32.68	25.49	0.334	2.23
	30	7.36	33.03	25.83	0.314	2.09
	50	6.96	33.33	26.13	0.107	2.91
	75	6.70	33.51	26.31	0.161	2.96

INTERPOLATED

	0	11.78	31.89	24.23	0.800	0.46
	10	11.20	32.20	24.58	0.760	0.41
	20	7.94	32.68	25.49	0.334	2.23
	30	7.36	33.03	25.83	0.314	2.09
	50	6.96	33.33	26.13	0.107	2.91
	75	6.70	33.51	25.31	0.161	2.96

STATION 108-41

48° 50'N, 125° 57'W - Off Amphitrite Point

2 July 1955
 Messenger time: 0330 (+8)
 Depth: 34 fm, 62 m

Weather: 02 Barometer: 30.08 in
 Sea height: 2 Wind: 290°, 12 kn
 Visibility: 8 Clouds: 2,8, amt 3
 Air temperature: dry 53°F, wet 51°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1	0	11.25	31.28	23.87	0.845	0.625
	10	9.75	31.74	24.47	0.597	1.46
	20	8.20	32.42	25.25	0.390	2.19
	30	7.84	32.66	25.49	0.310	2.37
	50	7.40	33.05	25.85	0.279	2.59

INTERPOLATED

	0	11.25	31.28	23.87	0.845	0.62
	10	9.75	31.74	24.47	0.597	1.46
	20	8.20	32.42	25.25	0.390	2.19
	30	7.84	32.66	25.49	0.310	2.37
	50	7.40	33.05	25.85	0.279	2.59

48° 42'N, 125° 24'W - Off Cape Beale

2 July 1955
 Messenger time: 0652 (+8)
 Depth: 60 fm, 109 m

Weather: 01
 Sea height: 0
 Visibility:
 Air temperature: dry 57°F, wet 55°F

Barometer: 30.10 in
 Wind: 310°, 8 km
 Clouds: 2, amt 2

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1	0	11.08	31.02	23.69	0.752	0.505
	10	8.06	32.23	25.11	0.350	2.28
	20	7.97	32.29	25.17	0.334	2.33
	30	7.90	32.34	25.22	0.327	2.31
	50	7.76	32.50	25.36	0.315	2.58
	75	7.55	32.75	25.59	0.290	2.46
	100	7.07	33.27	26.07	0.250	2.58

INTERPOLATED

	0	11.08	31.02	23.69	0.752	0.505
	10	8.06	32.23	25.11	0.350	2.228
	20	7.97	32.29	25.17	0.334	2.33
	30	7.90	32.34	25.22	0.327	2.31
	50	7.76	32.50	25.36	0.315	2.58
	75	7.55	32.75	25.59	0.290	2.46
	100	7.07	33.27	26.07	0.250	2.58

48° 32'N, 124° 45'W - Mouth of Strait of Juan de Fuca

2 July 1955
 Messenger time: 1050 (+8)
 Depth: 95 fm, 174 m

Weather: 02 Barometer: 30.11 in
 Sea height: 1 Wind: 270°, 1 kn
 Visibility: 8 Clouds: 5,8, amt 2
 Air temperature: dry 56°F, wet 54°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	10.15	31.07	23.88	0.529	2.19
	10	8.61	31.61	24.55	0.293	2.36
	20	8.35	31.82	24.75	0.216	1.95
	30	8.18	32.14	25.02	0.271	2.38
	50	8.09	32.24	25.02	0.252	2.50
	75	7.24	33.02	25.85	0.161	2.64
	100	6.96	33.50	26.27	0.167	2.55
	150	6.26	33.84	26.62	0.102	2.83

INTERPOLATED

	0	10.15	31.07	23.88	0.528	2.18
	10	8.61	31.61	24.55	0.293	2.36
	20	8.35	31.82	24.75	0.217	1.95
	30	8.18	32.14	25.02	0.272	2.98
	50	8.09	32.24	25.02	0.252	2.50
	75	7.25	33.02	25.85	0.161	2.64
	100	6.96	33.50	26.27	0.167	2.55
	150	6.26	33.84	26.62	0.102	2.83

M. V. BROWN BEAR CRUISE NO. 1144STATION 1144-1

48° 27'N, 124° 53'W - Swiftsure Bank Lightship

19 July 1956

Messenger time: 0212 (+8)

Depth: 164 fm, 300 m

Weather: 00

Barometer: - in.

Sea height: 1

Wind: - kn

Visibility: 9

Clouds: 00, amt 0

Air temperature: dry -, wet -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	11.50	31.93	24.32	0.586	0.69
	5	9.51	32.18	24.86	0.161	0.99
	10	8.68	32.33	25.10	0.510	1.56
	20	8.10	32.63	25.41	0.245	1.47
	29	7.72	32.84	25.64	0.246	1.53
	49	7.32	33.16	25.95	0.238	1.93
	73	6.87	33.53	26.30	0.166	2.07
	98	6.46	33.85	26.61	0.143	2.15
	148	6.38	33.87	26.63	0.129	2.42
	197	6.31	33.93	26.79	0.111	2.11

INTERPOLATED

	0	11.50	31.93	24.32	0.586	0.69
	10	8.68	32.33	25.10	0.510	1.56
	20	8.10	32.63	25.41	0.245	1.47
	30	7.70	32.85	25.65	0.245	1.73
	50	7.30	33.17	26.04	0.235	1.95
	75	6.81	33.56	26.33	0.164	2.08
	100	6.44	33.85	26.61	0.142	2.16
	150	6.36	33.87	26.64	0.128	2.40
	200	(6.31)	(33.93)	(26.69)	(0.110)	(2.09)

STATION 144-2

48° 11'N, 126° 53'W

19 July 1956

Messenger time: 1435 (+8)

Depth: -

Weather: 02

Barometer: - in

Sea height: 2

Wind: - kn

Visibility: 9

Clouds: 1, amt 1

Air temperature: dry -, wet -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	14.45	32.03	23.82	0.554	0.28
	10	13.88	32.06	23.96	0.547	0.27
	20	13.04	32.05	24.12	0.545	0.38
	30	9.80	32.41	24.99	0.654	0.45
	49	7.71	32.61	25.46	0.536	0.98
	73	7.96	33.44	26.08	0.334	1.61
	98	7.88	33.76	26.34	0.246	1.86
	147	7.43	33.96	26.56	0.161	2.05
	196	7.16	33.98	26.61	0.158	2.08
	294	6.62 ^c	34.02	26.72	0.140	2.08 ^c
1	293	6.60 ^c	34.02	26.72	0.140	2.04 ^c
	493	5.42	34.08	26.92	0.091	2.39
1a	724	4.41	34.22	27.15	0.025	2.93
	948	3.74	34.38	27.34	0.023	2.99
	1434	2.60	34.50	27.54	0.046	2.55

INTERPOLATED

0	14.45	32.03	23.82	0.554	0.28
10	13.88	32.06	23.96	0.547	0.27
20	13.04	32.05	24.12	0.545	0.38
30	9.80	32.41	24.99	0.654	0.45
50	7.72	32.64	25.48	0.514	1.04
75	7.95	33.49	26.12	0.332	1.64
100	7.84	33.78	26.36	0.240	1.87
150	7.41	33.96	26.56	0.160	2.05
200	7.12	33.98	26.62	0.158	2.08
250	6.85	34.00	26.67	0.150	2.06
300	6.55	34.02	26.73	0.140	2.06
400	5.94	34.05	26.84	0.118	2.19
500	5.39	34.09	26.93	0.090	2.40
600	4.95	34.15	27.03	0.058	2.64
700	4.52	34.22	27.13	0.030	2.89
800	4.17	34.29	27.23	0.023	2.96
1000	3.61	34.40	27.37	0.023	2.97
1200	3.12	34.46	27.46	0.030	2.80

STATION 144-8

50° 01'N, 132° 15'W

22 July 1956 Weather: 02 Barometer: 31.17 in
 Messenger time: 0650 (+8) Sea height: 2 Wind: 200°, 7 kn
 Depth: 1685 fm, 3081 m Visibility: 9 Clouds: 4, amt 8
 Air temperature: dry 56°F, wet 55°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L	
OBSERVED							
3	0	13.70	32.38	24.25	0.543	0.61	
	10	13.66	32.38	24.26	0.540	0.47	
	20	12.94	32.66	24.61	0.550	0.69	
	30	11.26	32.71	24.97	0.579	0.72	
	49	7.58	32.58 ^b	25.46	0.568	0.81	
	73	6.51	32.74	25.73	0.609	0.88	
	97	5.94	32.79	25.84	0.583	1.05	
	144	6.06	33.49	26.38	0.468	1.38	
	191	5.59	33.74	26.63	0.372	1.83	
	286	4.86 ^c	33.86 ^c	26.81	0.214 ^c	1.74 ^a	
	1	286	4.81 ^c	33.87 ^c	26.82	0.194 ^c	1.41 ^b
		474	4.19	34.04	27.03	0.076	1.76
		713	3.84	34.26	27.24	0.022	2.35
953		3.38	34.36	27.36	0.022	2.03	
1435		2.43	34.49	27.55	0.060	1.75	

INTERPOLATED

0	13.70	32.38	24.25	0.543	0.61
10	13.66	32.38	24.26	0.540	0.47
20	12.94	32.66	24.61	0.550	0.69
30	11.26	32.71	24.97	0.579	0.72
50	7.55	32.72	25.57	0.569	0.82
75	6.45	32.74	25.74	0.550	0.90
100	5.94	32.84	25.88	0.525	1.08
150	6.01	33.52	26.40	0.457	1.43
200	5.49	33.76	26.66	0.355	1.82
250	5.03	33.83	26.77	0.255	1.78
300	4.75	33.88	26.84	0.187	1.74 (6)
400	4.40	33.97	26.95	0.112	1.76
500	4.15	34.06	27.05	0.069	1.80
600	4.00	34.16	27.14	0.043	2.08
700	3.86	34.25	27.23	0.023	2.33
800	3.68	34.30	27.28	0.022	2.29
1000	3.28	34.37	27.38	0.023	1.98
1200	2.89	34.43	27.46	0.035	1.84

STATION 144-9

50° 00'N, 133° 55'W

23 July 1956

Messenger time: 0854 (+8)

Depth: -

Weather: 03

Sea height: 1

Visibility: 8

Air temperature: dry -, wet -

Barometer: - in

Wind: - kn

Clouds: 4, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
2	0	13.24	32.48	24.42	0.549	0.70
	10	13.10	32.48	24.44	0.549	0.72
	20	12.74	32.48	24.52	0.555	0.71
	29	12.06	32.54	24.69	0.567	0.80
	48	7.72	32.66	25.50	0.636	0.92
	72	5.91	32.70	25.77	0.620	1.10
	96	5.52	32.99	26.05	0.532	1.42
	143	5.65	33.58	26.50	0.379	1.77
	191	5.36	33.83	26.73	0.266	2.15
	285	4.64 ^c	33.91 ^c	26.87	0.154 ^c	2.40 ^c
1	283	4.65 ^c	33.90 ^c	26.86	0.158 ^c	2.31 ^c
	471	4.01	34.09	27.08	0.061	2.58
	707	3.68	34.27	27.26	0.043	2.92
	944	3.06	34.36	27.39	0.039	2.58
	1420	2.38	34.49	27.56	0.062	2.51

INTERPOLATED

0	13.24	32.48	24.42	0.549	0.70
10	13.10	32.48	24.44	0.549	0.72
20	12.74	32.48	24.52	0.555	0.71
30	11.60	32.55	24.78	0.570	0.81
50	7.20	32.67	25.58	0.634	0.93
75	5.87	32.72	25.79	0.614	1.12
100	5.52	33.08	26.12	0.512	1.46
150	5.63	33.63	26.53	0.357	1.83
200	5.30	33.84	26.74	0.250	2.17
250	4.88	33.89	26.83	0.184	2.29
300	4.57	33.92	26.89	0.147	2.37
400	4.21	34.02	27.01	0.092	2.50
500	3.97	34.12	27.11	0.058	2.63
600	3.81	34.20	27.19	0.049	2.80
700	3.69	34.27	27.26	0.043	2.91
800	3.47	34.32	27.32	0.041	2.83
1000	2.98	34.38	27.42	0.040	2.57
1200	2.69	34.43	27.48	0.048	2.53

STATION 144-10

49° 57'N, 136° 59'W

24 July 1956
 Messenger time: 0716 (+8)
 Depth: 2100 fm, 3840 m

Weather: 02
 Sea height: 2
 Visibility: 6
 Air temperature: dry 54°F, wet 53°F

Barometer: 30.43 in
 Wind: 300°, 7 kn
 Clouds: 8,9, amt 8

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
2	0	12.84	32.66	24.63	0.548	0.82
	10	12.84	32.67	24.64	0.548	0.85
	20	11.82	32.68	24.84	0.568	0.87
	29	9.64	32.74	25.27	0.604	0.82
	49	6.67	32.78	25.74	0.643	0.95
	73	5.50	32.81	25.91	0.628	1.03
	96	4.89	32.74	25.92	0.596	1.23
	144	5.10	33.62	26.59	0.410	1.93
	192	4.84	33.83	26.79	0.286	2.22
	288	4.25 ^c	33.91 ^c	26.92	0.144 ^c	1.42 ^b
1	288	4.20 ^c	33.93 ^c	26.94	0.146 ^c	1.97 ^a
	478	3.80	34.13	27.14	0.092	1.96
	715	3.36	34.25	27.28	0.046	1.73

INTERPOLATED

0	12.84	32.66	24.63	0.548	0.82
10	12.84	32.67	24.64	0.548	0.85
20	11.82	32.68	24.84	0.568	0.87
30	8.90	32.74	25.39	0.610	0.89
50	6.56	32.78	25.75	0.642	0.95
75	5.45	32.82	25.92	0.625	1.04
100	4.90	33.15	26.24	0.586	1.27
150	5.08	33.66	26.62	0.398	1.99
200	4.80	33.84	26.80	0.270	2.21
250	4.44	33.90	26.89	0.190	2.09
300	4.17	33.94	26.95	0.142	1.97
400	3.90	34.06	27.05	0.109	1.96
500	3.74	34.14	27.15	0.086	1.94
600	3.55	34.20	27.22	0.066	1.89
700	3.36	34.24	27.27	0.049	1.84

STATION 114-11

49° 56'N, 139° 52'W

25 July 1956 . Weather: 02 Barometer: 30.58 in
 Messenger time: 0212 (+8) Sea height: 1 Wind: 295°, 6 km
 Depth: 2130 fm, 3895 m Visibility: 6 Clouds: 6,8, amt 6
 Air temperature: dry 53°F, wet 51°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L	
OBSERVED							
2	0	12.36	32.65	24.72	0.561	0.94	
	10	12.27	32.62	24.72	0.563	0.95	
	19	9.03	32.70	25.34	0.628	0.98	
	29	8.12	32.75	25.51	0.625	1.09	
	49	6.14	32.83	25.84	0.632	1.18	
	73	5.53	32.84	25.93	0.619	1.28	
	97	4.98	32.89	26.03	0.605	1.32	
	146	5.36	33.69	26.62	0.454	1.77	
	195	5.00	33.82	26.76	0.322	2.13	
	292	4.00 ^c	33.93 ^c	26.97	0.182 ^c	2.36 ^b	
	3a	291	3.86 ^c	33.91 ^c	26.96	0.180	2.64 ^a
		485	3.84	34.11	27.12	0.062	3.09
		729	3.38	34.24 ^d	27.27	0.042	2.73
		970	2.96 ^d	34.36 ^d	27.40	0.034 ^d	3.01 ^d
975		2.99 ^d	34.36 ^d	27.40	0.032 ^d	2.79 ^d	
1456		2.38	34.47	27.54	0.048	3.02	
1940		1.95	34.55	27.64	0.107	2.52	
1	1945	1.96	34.55	27.64	0.107	2.12	
	1958	1.94	34.56 ^c	27.65	0.109	1.91	
	1963	1.95	34.57 ^c	27.65	0.110	1.84	
	2452	1.76	34.61	27.61	0.164	2.49	
	2931	1.60	34.63	27.73	0.214	2.12	
	2936	1.58	34.63	27.73	0.214	1.73	

STATION 144-11

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P µg-at/L
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INTERPOLATED

0	12.36	32.65	24.72	0.561	0.94
10	12.27	32.62	24.72	0.563	0.95
20	8.90	32.70	25.38	0.600	1.00
30	7.80	32.75	25.56	0.621	1.10
50	6.10	32.83	25.85	0.630	1.19
75	5.50	32.94	26.00	0.618	1.28
100	4.99	33.05	26.15	0.601	1.34
150	4.35	33.70	26.73	0.440	1.80
200	4.94	33.82	26.77	0.319	2.16
250	4.30	33.88	26.89	0.297	2.46
300	3.91	33.93	26.97	0.278	2.66
400	3.80	34.04	27.05	0.130	2.94
500	3.71	34.12	27.14	0.060	3.08
600	3.58	34.18	27.20	0.048	2.97
700	3.42	34.23	27.25	0.042	2.76
800	3.27	34.28	27.30	0.038	2.76
1000	2.92	34.36	27.40	0.033	2.91
1200	2.65	34.42	27.475	0.036	2.99
1500	2.33	34.48	27.55	0.052	2.96
2000	1.92	34.57	27.65	0.113	2.19
2500	1.75	34.61	27.70	0.170	2.50

STATION 144-12

48° 40'N, 140° 01'W

25 July 1956

Messenger time: 1721 (+8)

Depth: -

Weather: 15

Sea height: 1

Visibility: 6

Air temperature: dry 55°F, wet 53°F

Barometer: 30.57 in

Wind: 315°, 10 km

Clouds: 4,6, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
4	0	12.60	32.58	-	0.558	0.84
	9	12.61	32.59	-	0.552	0.87
	19	11.48	32.61	24.85	0.581	0.87
	28	9.90	32.67	25.17	0.599	0.90
	45	7.72	32.70	25.53	0.605	1.04
	68	5.30	32.77	25.90	0.621	1.22
	90	5.21	32.79	25.92	0.615	1.27
	136	5.15	-	-	0.531	1.61
	183	5.37	33.78	26.69	0.404	1.92
	275	4.68 ^c	33.90	26.86	0.192 ^c	1.70 ^a
2	285	4.48 ^c	33.91	26.89	0.191 ^c	1.60 ^b
	478	3.85	34.07	27.08	0.079	2.02
	718	3.40	34.24	27.26	0.045	2.76
3	959	2.92	34.35	27.40	0.034	2.39
	1444	2.36	34.47	27.54	0.059	2.51

INTERPOLATED

0	12.60	32.58	24.62	0.558	0.84
10	12.60	32.59	24.63	0.554	0.89
20	11.30	32.61	24.89	0.587	0.89
30	9.65	32.67	25.21	0.598	0.91
50	6.80	32.71	25.62	0.606	1.12
75	5.28	32.77	25.90	0.621	1.24
100	5.19	32.92	26.03	0.600	1.30
150	5.20	33.49	26.56	0.492	1.68
200	5.27	33.81	26.72	0.355	1.90
250	4.81	33.88	26.83	0.240	1.76
300	4.48	33.92	26.90	0.171	1.72
400	4.06	34.00	27.01	0.110	1.86
500	3.78	34.09	27.11	0.073	2.07
600	3.57	34.16	27.18	0.060	2.38
700	3.42	34.23	27.25	0.047	2.70
800	3.21	34.28	27.31	0.041	2.66
1000	2.87	34.37	27.42	0.036	2.38
1200	2.61	34.43	27.49	0.042	2.38

STATION 144-13

47° 19'N, 139° 58'W

26 July 1956
 Messenger time: 1804 (+8)
 Depth: 2330 fm, 4261 m

Weather: 15
 Sea height: 2
 Visibility: 6
 Air temperature: dry 56°F, wet 54°F

Barometer: 30.49 in
 Wind: 340°, 11 kn
 Clouds: 4, amt 3

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
2	0	13.18	32.69	24.59	0.548	0.85
	10	13.14	32.69	24.60	0.545	0.92
	20	12.44	32.69	24.74	0.559	0.92
	30	9.46	32.75	25.25	0.589	0.92
	48	7.70	32.88	25.68	0.615	1.02
	73	6.18	32.91	25.90	0.604	1.10
	97	5.78	32.88	25.93	0.598	1.19
	146	6.20	33.71	26.53	0.470	1.64
	194	5.62	33.80	26.67	0.395	1.89
	292	4.74 ^c	33.89	26.85	0.198 ^c	1.43
2a	292	4.62 ^c	33.89	26.86	0.194 ^c	1.77
1	486	4.00	33.90 ^b	26.93	0.066	2.26
	730	3.43	34.24	27.26	0.038	2.52
	972	2.92	34.37	27.41	0.039	2.69
	1457	2.30	34.49	27.54	0.057	2.79

INTERPOLATED

0	13.18	32.69	24.59	0.548	0.85
10	13.14	32.69	24.60	0.545	0.92
20	12.44	32.69	24.74	0.559	0.92
30	9.46	32.75	25.25	0.589	0.92
50	7.60	32.88	25.69	0.615	1.02
75	6.15	32.91	25.91	0.603	1.10
100	5.78	33.27	26.24	0.593	1.22
150	6.17	33.72	26.54	0.462	1.68
200	5.54	33.80	26.68	0.387	1.88
250	4.99	33.86	26.80	0.273	1.82
300	4.65	33.90	26.86	0.188	1.78
400	4.24	33.98	26.97	0.108	2.03
500	3.96	34.06	27.06	0.064	2.27
600	3.70	34.14	27.16	0.050	2.38
700	3.50	34.22	27.24	0.040	2.49
800	3.28	34.28	27.31	0.038	2.57
1000	2.88	34.38	27.42	0.040	2.70
1200	2.57	34.44	27.50	0.041	2.75

STATION 144-14

46° 00'N, 139° 58'W

27-28 July 1956
 Messenger time: 2331 (+8)
 Depth: 2365 fm, 4325 m

Weather: 02
 Sea height: 1
 Visibility: 7
 Air temperature: dry 58°F, wet 52°F

Barometer: 30.46 in
 Wind: 025°, 4 kn
 Clouds: 9, amt 8

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	14.50	32.76	24.37	0.527	0.97
	9	13.98	32.75	24.48	0.531	1.07
	19	12.88	32.745	24.69	0.531	0.90
	28	10.82	32.80	25.12	0.603	1.09
	45	9.46	32.83	25.37	0.614	1.10
	68	6.87	32.96	25.85	0.601	1.24
	89	6.54	32.94	25.88	0.557	1.32
	136	6.47	33.19	26.09	0.460	1.44
	180	6.32	33.83	26.61	0.214	1.71
	270	5.52	33.91 ^c	26.77	0.129 ^a	1.91 ^a
1	291	5.40	33.89 ^c	26.77	0.294 ^b	1.26 ^b
	482	4.20	34.05	27.03	0.113	1.90
	722	3.52	34.24	27.25	0.046	2.82 ^b
	965	3.02	34.36	27.40	0.030	1.82
	1448	2.34	34.50	27.57	0.046	1.90

INTERPOLATED

0	14.50	32.76	24.37	0.527	0.97
10	13.96	32.75	24.47	0.531	1.07
20	12.30	32.74	24.80	0.540	1.09
30	10.44	32.80	25.18	0.605	1.10
50	9.00	32.85	25.46	0.612	1.13
75	6.73	32.95	25.86	0.586	1.26
100	6.51	32.97	25.91	0.530	1.34
150	6.42	33.44	26.29	0.380	1.53
200	6.17	33.86	26.65	0.190	1.77
250	5.70	33.89	26.73	0.143	1.88
300	5.33	33.92	26.80	0.122	1.91
400	4.69	34.00	26.94	0.117	1.90
500	4.12	34.06	27.05	0.110	1.90
600	3.79	34.15	27.15	0.080	1.88
700	3.58	34.22	27.23	0.051	1.86
800	3.38	34.28	27.30	0.037	1.84
1000	2.98	34.37	27.41	0.030	1.83
1200	2.68	34.44	27.49	0.032	1.85

STATION 144-15

44° 05'N, 140° 04'W

29 July 1956
 Messenger time: 0254 (+8)
 Depth: 2357 fm, 4310 m

Weather: 01
 Sea height: 0
 Visibility: -
 Air temperature: dry 60°F, wet 57°F

Barometer: 30.39 in
 Wind: 095°, 6 kn
 Clouds: -, amt -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$	
OBSERVED							
2	0	15.87	32.99	24.25	0.519	0.62	
	10	15.70	32.96	24.27	0.525	0.71	
	20	14.20	33.01	24.63	0.587	0.64	
	30	11.76	33.04	25.13	0.616	0.71	
	49	9.17	33.15	25.67	0.598	0.92	
	73	8.04	33.16	25.85	0.582	1.04	
	97	7.90	33.22	25.91	0.569	1.03	
	146	7.78	33.71	26.31	0.504	1.40	
	193	7.56	33.93	26.52	0.459	1.56	
	290	6.13 ^c	33.93	26.71	0.350 ^c	1.56 ^b	
	3	283	6.25 ^c	33.92	26.69	0.365 ^c	1.96 ^a
		471	4.52	34.01	26.97	0.152	2.72
		709	3.92	34.20	27.18	0.054	2.76
		953	3.10	34.34	27.37	0.035	3.00 ^c
958		3.12	34.34	27.37	0.033	2.82 ^c	
1434		2.49	34.50	27.55	0.039	3.02	
1917		1.94	34.60	27.68	0.115	2.24 [*]	
1928		1.95	34.60	27.68	0.114	2.25 [*]	
1	1940	1.94	34.60	27.68	0.114	2.77 [*]	
	1949	1.97	34.59	27.67	0.112	2.90 [*]	
	2429	1.76	34.64	27.72	0.164	2.19	
	2914	1.56	34.65	27.75	-	2.31 ^d	
	2919	1.58	34.65	27.75	-	2.08 ^d	
	3399	1.57	34.66	27.75	-	2.28	
	3898	1.50	34.67	27.77	0.265	1.87 ^c	
3903	1.51	34.67	27.77	0.266	2.00 ^c		

STATION 144-15

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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INTERPOLATED

0	15.87	32.99	24.25	0.519	0.62
10	15.70	32.96	24.27	0.525	0.71
20	14.20	33.01	24.63	0.587	0.64
30	11.76	33.04	25.13	0.616	0.71
50	9.10	33.10	25.64	0.597	0.92
75	8.02	33.17	25.85	0.582	1.06
100	7.90	33.24	25.92	0.565	1.17
150	7.78	33.73	26.33	0.500	1.41
200	7.49	33.83	26.46	0.450	1.59
250	6.64	33.89	26.62	0.393	1.81
300	5.98	33.93	26.73	0.338	2.04
400	5.05	33.98	26.88	0.230	2.50
500	4.40	34.03	26.995	0.134	2.75
600	4.12	34.12	27.10	0.088	2.78
700	3.93	34.19	27.17	0.057	2.76
800	3.59	34.26	27.25	0.043	2.80
1000	3.02	34.36	27.39	0.034	2.92
1200	2.72	34.43	27.48	0.039	2.98
1500	2.40	34.52	27.57	0.057	2.98
2000	1.92	34.61	27.69	0.120	2.49
2500	1.73	34.64	27.73	0.168	2.18
3000	1.57	34.65	27.74	0.200	2.20
3500	1.58	34.66	27.75	0.288	2.24

STATION 144-16

44° 00'N, 137° 45'W

30 July 1956

Messenger time: 0033 (+8)

Depth: 2260 fm, 4133 m

Weather: -

Sea height: 1

Visibility: 7

Air temperature: dry 60°F, wet 58°F

Barometer: 30.35 in

Wind: 100°, 8 kn

Clouds: -, amt -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L	
OBSERVED							
2	0	15.97	32.94	24.19	0.504	0.69	
	10	15.82	32.92	24.21	0.511	0.73	
	19	14.84	32.95	24.45	0.541	0.73	
	29	11.88	32.99	25.07	0.535	0.62	
	47	8.78	33.07	25.66	0.560	0.97	
	71	8.00	33.09	25.80	0.571	1.10	
	95	7.56	33.07	25.84	0.564	1.18	
	146	7.66	33.59	26.24	0.463	1.51	
	194	7.40	33.90	26.52	0.447	1.64	
	292	5.98	33.91	26.72	0.324	1.89	
	1	282	6.20	33.90	26.68	0.352	1.86
		472	4.38	34.00	26.97	0.134	2.63
		713	3.68	34.21	27.21	0.055	3.04
		956	3.13	34.33	27.36	0.031	2.88
1438		2.42	34.50	27.56	0.046	2.91	

INTERPOLATED

0	15.97	32.94	24.19	0.504	0.69
10	15.82	32.92	24.21	0.511	0.73
20	14.10	32.95	24.60	0.538	0.73
30	9.90	33.00	25.43	0.540	0.64
50	8.64	33.07	25.68	0.562	1.02
75	7.95	33.09	25.80	0.570	1.14
100	7.58	33.08	25.85	0.515	1.20
150	7.62	33.63	26.27	0.460	1.52
200	7.33	33.90	26.53	0.443	1.64
250	6.78	33.91	26.61	0.407	1.66
300	5.75	33.91	26.74	0.316	1.71
400	4.30	33.94	26.93	0.203	2.18
500	4.09	34.03	27.02	0.120	2.72
600	3.90	34.12	27.12	0.081	2.92
700	3.70	34.20	27.20	0.057	3.03
800	3.50	34.26	27.27	0.043	3.01
1000	3.05	34.35	27.38	0.032	2.88
1200	2.68	34.43	27.48	0.038	2.88

STATION 144-17

43° 59'N, 135° 06'W

31 July 1956
 Messenger time: 0119 (+8)
 Depth: 2135 fm, 3904 m

Weather: 02
 Sea height: 1
 Visibility: 7
 Air temperature: dry 59°F, wet 58°F

Barometer: 30.37 in
 Wind: 045°, 6 kn
 Clouds: -, amt -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
3	0	15.60	32.96	24.29	0.508	0.56
	10	15.58	32.95	24.29	0.509	0.62
	19	15.31	32.95	24.35	0.511	0.59
	29	13.18	33.01	24.84	0.514	0.61
	48	9.40	32.94	25.47	0.588	0.83
	72	8.42	32.94	25.62	0.576	0.88
	96	8.69	33.12	25.72	0.563	0.85
	144	7.44	33.31	26.05	0.487	1.39
	192	7.71	33.865	26.44	0.439	1.52
	287	6.18 ^c	33.97 ^c	26.74	0.301 ^c	1.44 ^b
1	280	6.44 ^c	33.92 ^c	26.67	0.329 ^c	1.73 ^a
2	470	4.78	33.96	26.90	0.124	2.69
	709	4.03	34.14	27.12	0.040	3.10
	948	3.34	34.32	27.33	0.023	2.99
	1428	2.52	34.48	27.53	0.051	2.98

INTERPOLATED

0	15.60	32.96	24.29	0.508	0.56
10	15.58	32.95	24.29	0.509	0.62
20	15.00	32.95	24.41	0.511	0.59
30	13.00	33.01	24.87	0.560	0.63
50	9.20	32.94	25.49	0.587	0.85
75	8.55	32.95	25.60	0.575	0.87
100	8.68	33.13	25.72	0.556	0.90
150	7.48	33.36	26.08	0.482	1.41
200	7.60	33.87	26.46	0.428	1.54
250	6.70	33.92	26.63	0.353	1.66
300	6.15	33.94	26.75	0.295	1.86
400	5.30	33.95	26.83	0.186	2.41
500	4.68	33.98	26.92	0.110	2.76
600	4.34	34.06	27.02	0.073	2.95
700	4.08	34.13	27.11	0.042	3.09
800	3.76	34.21	27.20	0.028	3.07
1000	3.23	34.34	27.36	0.020	2.98
1200	2.84	34.43	27.47	0.023	2.94

STATION 114-18

43° 59'N, 131° 40'W

31 July 1956
 Messenger time: 2226 (+8)
 Depth: 2147 fm, 3926 m

Weather: 02
 Sea height: 1
 Visibility: 8
 Air temperature: dry 59°F, wet 56°F

Barometer: 30.35 in
 Wind: 340°, 8 kn.
 Clouds: 4,8, amt 5

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
3	0	15.52	32.87	24.24	0.505	0.61
	10	15.54	32.85	24.22	0.481	0.61
	19	15.32	32.85	24.27	0.500	0.61
	29	15.18	32.84	24.29	0.509	0.61
	48	12.48	32.81	24.82	0.557	0.68
	73	8.54	32.79	25.48	0.579	0.95
	97	7.83	32.80	25.60	0.573	1.14
	145	7.28	33.00	25.83	0.518	1.40
	194	7.18	33.59	26.31	0.381	1.74
	291	6.42 ^c	33.89 ^c	26.64	0.236 ^c	1.65 ^b
1	283	6.34 ^c	33.91 ^c	26.67	0.223 ^c	2.19 ^a
	470	4.99	34.04	26.94	0.097	2.67
	706	4.10	34.22	27.17	0.029	3.07
	940	3.45	34.35	27.35	0.021	3.00
2	1453	2.48	34.49	27.55	0.055	2.80

INTERPOLATED

0	15.52	32.87	24.24	0.505	0.61
10	15.54	32.85	24.22	0.481	0.61
20	15.30	32.85	24.27	0.503	0.62
30	15.10	32.84	24.30	0.516	0.62
50	12.10	32.81	24.89	0.562	0.68
75	8.50	32.79	25.42	0.578	0.96
100	7.72	32.81	25.63	0.568	1.16
150	7.25	33.06	25.88	0.495	1.42
200	7.12	33.63	26.34	0.365	1.77
250	6.70	33.83	26.56	0.273	2.06
300	6.29	33.90	26.67	0.210	2.24
400	5.49	33.98	26.83	0.128	2.52
500	4.81	34.07	26.98	0.084	2.74
600	4.42	34.14	27.07	0.054	2.93
700	4.11	34.22	27.17	0.031	3.06
800	3.82	34.28	27.25	0.022	3.07
1000	3.33	34.38	27.38	0.024	2.98
1200	2.97	34.45	27.47	0.035	2.89

STATION 144-19

43° 59'N, 128° 29'W

1 August 1956
 Messenger time: 2005 (+8)
 Depth: 1385 fm, 2532 m

Weather: 03
 Sea height: 3
 Visibility: 8
 Air temperature: dry 62°F, wet 58°F

Barometer: 30.25 in
 Wind: 345°, 16 kn
 Clouds: 8, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
2	0	16.79	29.87	21.66	0.498	0.13
	10	16.80	29.95	21.72	0.498	0.13
3	19	15.72	31.81	23.38	0.520	0.27
	29	15.44	32.39	23.89	0.547	0.34
	48	12.07	32.66	24.78	0.588	0.51
	73	8.34	32.71	25.45	0.573	1.02
	97	7.74	32.78	25.59	0.542	1.13
	136	7.43	33.52	26.22	0.361	1.78
	181	7.18	33.83	26.49	0.269	2.07
1	272	5.91	33.90 ^c	26.72	0.226 ^b	1.57
	247	6.09	33.90 ^c	26.69	0.223 ^a	1.69
	422	5.08	34.05	26.94	0.084	2.17
	632	4.17	34.19	27.15	0.033	2.57
	847	3.74	34.33	27.30	0.024	2.32
	1305	2.78	34.49	27.52	0.050	2.21

INTERPOLATED

	0	16.79	29.87	21.66	0.498	0.13
	10	16.80	29.95	21.72	0.498	0.13
	20	15.70	32.22	23.70	0.525	0.29
	30	15.30	32.46	23.96	0.551	0.36
	50	9.80	32.66	25.18	0.587	0.60
	75	8.30	32.72	25.46	0.573	1.02
	100	7.72	32.84	25.64	0.457	1.22
	150	7.33	33.63	26.31	0.330	1.88
	200	6.75	33.64	26.40	0.254	2.02
	250	6.05	33.90	26.69	0.218	1.68
	300	5.75	33.94	26.76	0.182	1.68
	400	5.18	34.03	26.90	0.103	2.08
	500	4.71	34.10	27.02	0.051	2.35
	600	4.29	34.17	27.11	0.035	2.52
	700	4.02	34.24	27.20	0.027	2.50
	800	3.81	34.30	27.272	0.025	2.38
	1000	3.45	34.40	27.386	0.032	2.26
	1200	3.03	34.47	27.48	0.044	2.23

STATION 144-21

44° 00' N, 125° 16' W - W of Suislaw R.

2 August 1956 Weather: 03 Barometer: 30.13 in
 Messenger time: 1811 (+8) Sea height: 1 Wind: 320°, 8 km
 Depth: 1310 fm, 2395 m Visibility: 5 Clouds: 6,8, amt 6
 Air temperature: dry 63°F, wet 60°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	15.53	31.50	23.19	0.524	0.27
3	10	14.60	31.71	23.55	0.537	0.23
	19	10.94	32.46	24.83	0.645	0.44
	28	8.52	32.58	25.32	0.579	0.88
	45	7.88	32.66	25.48	0.536	1.06
	68	7.30	32.81	25.68	0.516	1.15
	90	7.62	33.36	26.06	0.353	1.65
	135	7.52	33.78	26.41	0.262	2.13
	179	6.80	33.92	26.62	0.201	2.37
	270	5.90	33.96 ^c	26.76	0.157 ^c	2.23 ^c
1	272	6.30	34.01 ^c	26.75	0.138 ^c	2.13 ^c
	454	5.26	34.12	26.97	0.061	2.74
	682	4.62	34.24	27.14	0.026	2.42
	912	3.90	34.36	27.31	0.022	2.39
	1383	2.85	34.49	27.51	0.056	2.42

INTERPOLATED

	0	15.53	31.50	23.19	0.524	0.27
	10	14.60	31.71	23.55	0.537	0.23
	20	10.50	32.48	24.92	0.558	0.43
	30	8.35	32.59	25.35	0.577	0.92
	50	7.70	32.68	25.52	0.518	1.12
	75	7.40	33.02	25.83	0.410	1.44
	100	7.63	33.48	26.16	0.327	1.74
	150	7.33	33.84	26.48	0.240	2.17
	200	6.64	33.94	26.66	0.186	2.31
	250	6.40	33.98	26.72	0.157	2.22
	300	6.15	34.02	26.78	0.132	2.24
	400	5.55	34.09	26.91	0.085	2.60
	500	5.13	34.15	27.00	0.053	2.68
	600	4.86	34.20	27.08	0.038	2.53
	700	4.55	34.25	27.15	0.025	2.42
	800	4.18	34.30	27.23	0.021	2.39
	1000	3.84	34.38	27.33	0.024	2.39
	1200	3.80	34.44	27.38	0.039	2.39

STATION 144-22

43° 58' N, 124° 56' W - W of Suislaw R.

2 August 1956 Weather: - Barometer: - in
 Messenger time: 2322 (+8) Sea height: - Wind: -
 Depth: - Visibility: - Clouds: -, amt -
 Air temperature: dry -, wet -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1	0	13.50	32.44	24.33	0.580	0.54
	5	12.74	32.44	24.48	0.585	0.57
	10	11.76	32.48	24.70	0.596	0.64
	20	10.03	32.59	24.09	0.559	0.98
	30	8.84	32.60	25.29	0.545	1.07
	49	7.72	32.83	25.63	0.484	1.29
	73	7.74	33.16	25.89	0.418	1.66
	96	7.50	33.52	26.21	0.290	2.09
	144	6.98	33.88	26.56	0.183	2.54

INTERPOLATED

	0	13.50	32.44	24.33	0.580	0.54
	10	11.76	32.48	24.70	0.596	0.64
	20	10.30	32.59	25.09	0.559	0.98
	30	8.84	32.60	25.29	0.545	1.07
	50	7.72	32.86	25.66	0.480	1.39
	75	7.73	33.22	25.94	0.410	1.88
	100	7.43	33.58	26.26	0.280	2.15
	150	(6.92)	(33.90)	(26.58)	(0.174)	(2.58)

STATION 114-24

39° 58'N, 125° 11'W - SW of Pt. Delgada

9 August 1956
 Messenger time: 0906 (+8)
 Depth: 1000 fm, 1829 m

Weather: 01
 Sea height: 3
 Visibility: 6
 Air temperature: dry 55°F, wet 54°F

Barometer: 30.17 in
 Wind: 355°, 40 km
 Clouds: 6, amt 8

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
1	0	12.72	32.98	24.90	0.547	0.77
	8	12.73	32.98	24.90	0.542	0.76
	15	12.74	32.97	24.89	0.539	0.79
	23	12.72	32.97	24.90	0.542	0.81
	37	12.70	32.98	24.90	0.542	0.90
	57	9.38	32.83 ^b	25.38	0.560	0.99
	74	8.81	32.89 ^b	25.52	0.518	1.14
	113	8.07	33.10	25.79	0.475	1.40
	153	7.81	33.62	26.24	0.345	1.98
	237	7.06	33.93	26.59	0.206	1.72
2	177	7.63	33.76	26.38	-	-
	293	6.28	33.96	26.72	0.167	1.90
	431	5.26	34.04	26.91	0.091	2.02
	584	4.76	34.19	27.08	0.028	1.94
	904	3.84	34.39	27.34	0.022	2.14

INTERPOLATED

0	12.72	32.98	24.90	0.547	0.77
10	12.73	32.98	24.90	0.540	0.76
20	12.72	32.97	24.90	0.541	0.80
30	12.71	32.97	24.89	0.542	0.86
50	10.20	33.00	25.379	0.553	0.96
75	8.80	33.02	25.621	0.517	1.14
100	8.27	33.06	25.734	0.498	1.30
150	7.85	33.58	26.20	0.360	1.94
200	7.45	33.85	26.47	0.252	1.79
250	6.87	33.94	26.62	0.195	1.73
300	6.20	33.96	26.72	0.163	1.82
400	5.44	34.02	26.87	0.106	1.99
500	5.03	34.10	26.98	0.058	1.99
600	4.78	34.20	27.09	0.028	1.95
700	4.48	34.27	27.17	0.025	2.01
800	4.18	34.33	27.25	0.023	2.07

STATION 114-25

40° 01'N, 127° 34'W

10 August 1956
 Messenger time: 0547 (+8)
 Depth: 2380 fm, 4352 m

Weather: 02
 Sea height: 3
 Visibility: 6
 Air temperature: dry 51.5°F, 60.5°F

Barometer: 30.38 in.
 Wind: 010°, 24 km
 Clouds: 6, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

2	0	16.31	32.80	24.01	0.502	0.50
	8	16.32	32.80	24.01	0.508	0.61
	15	16.32	32.80	24.01	0.508	0.51
	22	16.32	32.78	23.99	0.506	0.51
	38	16.30	32.78	24.00	0.516	0.51
	59	15.73	32.79	24.13	0.511	0.55
	76	10.58	32.84	25.19	0.544	0.94
	116	8.18	33.41	26.02	0.354	2.01
	158	7.54 ^c	33.80 ^a	26.42	0.267	2.34 ^a
	250	6.35	33.95	26.70	0.198	1.95
1	177	7.03 ^c	33.89 ^b	26.56	0.234	1.66 ^b
	314	5.74	34.00	26.82	0.124	1.90
	492	4.96	34.11	27.00	0.054	2.38
	672	4.28	34.25	27.18	0.021	2.55
	1086	3.24	34.50	27.49	0.039	2.61

INTERPOLATED

	0	16.31	32.80	24.01	0.502	0.50
	10	16.32	32.80	24.02	0.508	0.51
	20	16.32	32.79	24.00	0.507	0.51
	30	16.31	32.78	23.99	0.510	0.51
	50	16.02	32.78	24.06	0.512	0.53
	75	11.00	32.84	25.12	0.542	0.88
	100	8.78	33.20	25.76	0.463	1.74
	150	7.50	33.77	26.40	0.285	2.30
	200	6.81	33.88	26.58	0.222	2.12
	250	6.25	33.95	26.71	0.198	1.95
	300	5.84	33.99	26.80	0.143	1.90
	400	5.30	34.06	26.92	0.081	2.08
	500	4.92	34.12	27.01	0.051	2.39
	600	4.53	34.19	27.11	0.032	2.51
	700	4.20	34.27	27.21	0.020	2.56
	800	3.90	34.34	27.30	0.020	2.59
	1000	3.44	34.45	27.43	0.031	2.61

STATION 144-26

39° 58'N, 129° 57'W

11 August 1956 Weather: 50 Barometer: 30.34 in.
 Messenger time: 0038 (+8) Sea height: 2 Wind: 350°, 17 kn
 Depth: 2510 fm, 4680 m Visibility: 6 Clouds: 4, amt 7
 Air temperature: dry 62°F, wet 61°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
3	0	16.64	32.82	23.95	0.502	0.41
	10	16.62	32.81	23.94	0.501	0.40
	19	16.62	32.80	23.94	0.502	0.46
	29	16.52	32.80	23.96	0.502	0.42
	48	14.54	32.93	24.50	0.549	0.51
	73	10.52	32.96	25.29	0.588	0.64
	97	9.35	32.96	25.49	0.559	0.81
	138	8.50	33.125	25.75	0.504	1.26
4	183	7.94	33.58	26.19	0.418	1.66
	274	6.62	33.91	26.63	0.272	1.81
1	247	7.06	33.88	26.55	0.285	1.44b
	414	5.30	34.01	26.88	0.115	1.86
2	630	4.48	34.19	27.11	0.028	2.42
	847	3.76	34.32	27.29	0.017	2.23
	1309	2.88	34.48	27.50	0.048	2.64

INTERPOLATED

0	16.64	32.82	23.95	0.502	0.41
10	16.62	32.81	23.94	0.501	0.40
20	16.61	32.80	23.93	0.501	0.44
30	16.30	32.80	24.01	0.504	0.42
50	14.05	32.93	24.60	0.552	0.51
75	10.40	32.96	25.32	0.587	0.66
100	9.22	33.01	25.55	0.546	0.86
150	8.37	33.20	25.83	0.467	1.45
200	7.70	33.69	26.31	0.363	1.71
250	6.99	33.89	26.57	0.278	1.80
300	6.32	33.93	26.69	0.204	1.82
400	5.38	34.00	26.86	0.121	1.85
500	4.96	34.09	26.98	0.074	2.10
600	4.58	34.17	27.09	0.036	2.36
700	4.23	34.24	27.18	0.022	2.36
800	3.91	34.29	27.25	0.023	2.28
1000	3.46	34.39	27.38	0.025	2.34
1200	3.09	34.45	27.46	0.039	2.53

STATION 144-27

39° 57'N, 132° 28'W

11 August 1956
 Messenger time: 2211 (+8)
 Depth: 2400 fm, 4389 m

Weather: 60
 Sea height: 2
 Visibility: 6
 Air temperature: dry 62°F, wet 60°F

Barometer: 30.14 in.
 Wind: 350°, 22 kn
 Clouds: 6, 9, amt 8

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	18.50	33.16	23.76	0.486	0.42
	8	18.48	33.15	23.76	0.486	0.44
	17	17.34	33.13	24.02	0.501	0.38
	25	16.83	33.14	24.15	0.508	0.40
	41	12.53	33.03	24.98	0.595	0.47
	62	10.44	32.99	25.33	0.571	0.68
	82	9.98	33.02	25.43	0.558	0.77
	125	9.37	33.12	25.61	0.531	0.99
	170	8.50	33.42	25.97	0.460	1.43
	3	263	7.62	33.92	26.50	0.396
1	248	7.86	33.87	26.43	0.400	1.28 ^b
	414	5.44	33.95	26.81	0.165	1.56
	623	4.28	34.11	27.07	0.057	2.14
3	848	3.59	34.28	27.28	0.071	2.05
	1327	2.72	34.48	27.52	0.046	2.49

INTERPOLATED

0	18.50	33.16	23.76	0.486	0.42
10	18.40	33.14	23.77	0.487	0.44
20	17.12	33.12	24.07	0.503	0.38
30	15.85	33.08	24.33	0.538	0.42
50	11.14	33.01	25.22	0.586	0.52
75	10.10	33.01	25.41	0.560	0.74
100	9.70	33.05	25.50	0.548	0.87
150	8.89	33.26	25.80	0.492	1.27
200	8.20	33.62	26.18	0.440	1.42
250	7.78	33.88	26.45	0.405	1.41
300	7.10	33.93	26.58	0.335	1.43
400	5.62	33.95	26.79	0.182	1.54
500	4.85	34.01	26.93	0.107	1.66
600	4.37	34.09	27.05	0.064	1.78
700	3.99	34.17	27.15	0.035	1.89
800	3.70	34.25	27.24	0.018	2.00
1000	3.25	34.36	27.37	0.012	2.20
1200	2.92	34.44	27.57	0.030	2.38

STATION 144-28

40° 01'N, 134° 54'W

12 August 1956 Weather: 02 Barometer: 30.02 in
 Messenger time: 1626 (+8) Sea height: 2 Wind: 005°, 9 kn
 Depth: 2085 fm, 3813 m Visibility: 7 Clouds: 4,8, amt 5
 Air temperature: dry 64°F, wet 60°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ / mg-at/L	PO ₄ -P µg-at/L	
OBSERVED							
2	0	19.41	33.40	23.72	0.478	0.29	
	10	19.36	33.38	23.71	0.477	0.29	
	19	19.30	33.39	23.74	0.475	0.32	
	29	17.86	33.22	23.97	0.512	0.39	
	47	12.20	33.02	25.04	0.588	0.60	
	71	9.80	33.01	25.45	0.571	0.76	
	95	9.28	33.01	25.54	0.558	0.84	
	142	8.76	33.27	25.82	0.516	1.19	
	190	8.51	33.72	26.21	0.458	1.46	
	286	7.18 ^c	33.94	26.59	0.336 ^c	1.81 ^c	
	3	287	7.26 ^c	33.95	26.58	0.347 ^c	1.98 ^c
		482	5.18	33.99	-	0.145	2.98 ^b
727		3.97	34.16	27.14	0.040	2.59	
970		3.46	34.35	27.35	0.022	2.74 ^c	
977		3.46	34.34	27.33	0.023	2.59 ^c	
1452		2.66	34.49	27.53	0.060	2.64	
1940		1.98	34.58	27.66	0.125	2.31	
3	1865	2.06	34.57	27.64	0.103	1.92	
	1874	2.08	34.57	27.64	0.104	1.99	
	2343	1.80	34.61	27.70	0.161	2.06	
	2818	1.62	34.63	27.73	0.200	1.94	
	2822	1.62	34.62	27.72	0.201	2.13	

STATION 144-28

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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INTERPOLATED

0	19.41	33.40	23.72	0.478	0.29
10	19.36	33.38	23.71	0.477	0.29
20	19.30	33.31	23.68	0.476	0.32
30	17.20	33.20	24.11	0.520	0.40
50	11.35	33.02	25.19	0.587	0.61
75	9.65	33.01	25.48	0.578	0.78
100	9.21	33.02	25.56	0.552	0.86
150	8.72	33.37	25.91	0.500	1.24
200	8.41	33.77	26.27	0.448	1.50
250	7.77	33.89	26.46	0.384	1.77
300	7.02	33.95	26.61	0.327	1.93
400	5.93	33.99	26.79	0.221	2.14
500	5.05	34.00	26.90	0.134	2.30
600	4.50	34.06	27.01	0.085	2.44
700	4.06	34.14	27.12	0.049	2.56
800	3.78	34.21	27.20	0.031	2.63
1000	3.41	34.36	27.36	0.023	2.66
1200	3.05	34.43	27.44	0.034	2.66
1500	2.59	34.50	27.54	0.067	2.58
2000	1.93	34.59	27.67	0.120	1.99
2500	1.72	34.62	27.71	0.178	2.06

STATION 114-29

42° 48'N, 134° 57'W

13 August 1956
 Messenger time: 2045 (+8)
 Depth: 2110 fm, 3858 m

Weather: 15
 Sea height: 1
 Visibility: 7
 Air temperature: dry 62.8°F, wet 61°F

Barometer: 30.06 in
 Wind: 130°, 8 km
 Clouds: 8,9, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
4	0	18.60	33.15	23.73	0.498	0.57
	10	18.43	33.13	23.76	0.501	0.54
	19	15.45	-	-	0.579	0.50
	29	13.62	33.17	24.87	0.596	0.53
	48	11.82	33.24	25.28	0.594	0.53
	72	10.06	33.23	25.58	0.581	0.72
	96	9.26	33.19	25.68	0.565	0.86
	147	8.72	33.39	25.92	0.522	1.19
	193	8.12	33.77	26.31	0.473	1.51
	295	6.81	33.91 ^c	26.61	0.387 ^c	1.66
1	295	6.80	33.89 ^c	26.59	0.382 ^c	1.65
	488	4.54	33.95	26.92	0.148	2.35
	740	3.77 ^d	34.14 ^d	27.15	0.047	2.74 ^a
2	769	3.56 ^d	34.18 ^d	27.20	0.041	2.28 ^b
3	1440	2.58	34.48	27.53	0.045	2.36
	1435	2.62	-	-	-	-

INTERPOLATED

0	18.60	33.15	23.73	0.498	0.57
10	18.43	33.13	23.76	0.501	0.54
20	15.05	33.15	24.56	0.580	0.50
30	13.30	33.17	24.94	0.596	0.53
50	11.64	33.20	25.28	0.592	0.53
75	9.95	33.24	25.61	0.580	0.74
100	9.21	33.27	25.75	0.561	0.88
150	8.68	33.41	25.95	0.519	1.20
200	8.00	33.78	26.34	0.469	1.52
250	7.31	33.86	26.50	0.423	1.59
300	6.63	33.91	26.63	0.378	1.68
400	5.42	33.93	26.80	0.242	2.07
500	4.47	33.96	26.93	0.138	2.38
600	4.05	34.04	27.04	0.088	2.58
700	3.76	34.12	27.13	0.058	2.71
800	3.54	34.18	27.20	0.041	2.73
1000	3.20	34.26	27.30	0.041	2.65
1200	2.92	34.36	27.40	0.042	2.54

STATION 114-30

44° 00'N, 135° 04'W

14 August 1956
 Messenger time: 1002 (+8)
 Depth: 2130 fm, 3895 m

Weather: 02
 Sea height: 1
 Visibility: 7
 Air temperature: dry 62.4°F, wet 62°F

Barometer: 30.06 in
 Wind: 160°, 4 km
 Clouds: 8,9, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	17.52	32.99	23.87	0.504	0.68
	10	17.34	32.99	23.91	0.507	0.63
	19	15.80	33.035	24.30	0.552	0.58
	29	13.55	33.05	24.79	0.580	0.61
	48	10.26	33.10	25.45	0.596	0.74
	72	8.98	33.12	25.67	0.571	0.93
	96	8.56	33.14	25.75	0.561	0.99
	144	7.90	33.55	26.17	0.492	1.52
	192	7.72	33.87	26.45	0.451	1.70
	288	6.24	33.90	26.675	0.218 ^c	1.89 ^a
1	287	-	33.88	-	0.226 ^c	1.44 ^b
	482	4.82	34.00	26.925	0.097	1.80
	727	4.05	34.21	27.17	0.024	2.17
	970	3.34	34.33	27.34	0.018	2.04
	1457	2.50	34.50	27.55	0.058	2.13

INTERPOLATED

0	17.52	32.99	23.87	0.504	0.68
10	17.34	32.99	23.91	0.507	0.63
20	15.50	33.04	24.37	0.553	0.58
30	12.75	33.05	24.95	0.580	0.61
50	10.09	33.10	25.48	0.595	0.76
75	8.88	33.12	25.69	0.571	0.94
100	8.50	33.15	25.77	0.556	1.02
150	7.89	33.60	26.21	0.486	1.54
200	7.65	33.85	26.44	0.440	1.71
250	6.90	33.90	26.59	0.305	1.82
300	6.10	33.90	26.70	0.208	1.88
400	5.30	33.95	26.83	0.140	1.85
500	4.75	34.01	26.94	0.090	1.81
600	4.38	34.11	27.06	0.058	1.97
700	4.11	34.19	27.15	0.030	2.14
800	3.84	34.25	27.23	0.020	2.14
1000	3.28	34.34	27.36	0.019	2.04
1200	2.90	34.42	27.45	0.030	2.07

STATION 144-33

44° 01'N, 131° 44'W

16 August 1956
 Messenger time: 0438
 Depth: 1938 fm, 3545 m

Weather: 02 Barometer: 30.03 in
 Sea height: 1 Wind: 180°, 0+ kn
 Visibility: 8 Clouds: 0, amt 0
 Air temperature: dry 62°F, wet 62°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	17.20	32.86	23.85	0.497	0.69
	10	17.08	32.86	23.88	0.502	0.68
	19	16.64	32.87	23.99	0.508	0.66
	29	15.28	32.84	24.27	0.536	0.65
	48	12.05	32.81	24.90	0.583	0.69
	71	8.66	32.79	25.46	0.602	0.88
	95	7.98	32.79	25.57	0.591	0.97
	143	7.05	32.78	25.69	0.588	1.36
	191	7.27	33.50	26.22	0.447	1.80
	286	6.11 ^c	33.87	26.67	0.285	1.98
	1	294	6.15 ^c	33.88	26.67	0.279
483		4.80	34.01	26.94	0.097	1.77
720		4.14	34.22	27.17	0.028	2.26
964		3.42	34.34	27.34	0.019	2.17
1444		2.50	34.48	27.54	0.062	2.21

INTERPOLATED

0	17.20	32.86	23.85	0.497	0.69
10	17.08	32.86	23.88	0.502	0.68
20	16.60	32.87	24.00	0.510	0.66
30	15.10	32.84	24.30	0.540	0.64
50	11.50	32.81	25.00	0.588	0.69
75	8.55	32.79	25.47	0.600	0.90
100	7.85	32.79	25.58	0.592	0.98
150	7.09	32.86	25.74	0.580	1.42
200	7.19	33.54	26.26	0.427	1.81
250	6.61	33.78	26.53	0.340	1.86
300	6.03	33.89	26.69	0.270	1.88
400	5.34	33.97	26.84	0.160	1.82
500	4.73	34.02	26.95	0.090	1.78
600	4.41	34.12	27.06	0.055	2.00
700	4.19	34.21	27.16	0.032	2.23
800	3.90	34.27	27.24	0.024	2.23
1000'	3.33	34.36	27.36	0.020	2.18
1200	2.90	34.42	27.39	0.034	2.18

STATION 144-34

44° 00'N, 128° 29'W

17 August 1956
 Messenger time: 0300 (+8)
 Depth: 1380 fm, 2523 m

Weather: 00
 Sea height: 1
 Visibility: -
 Air temperature: dry 64°F, wet 64°F

Barometer: 30.09 in
 Wind: 170°, 10 kn
 Clouds: -, amt -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L	
OBSERVED							
2	0	18.40	30.10	21.46	0.494	0.06	
	9	18.25	30.12	21.51	0.496	0.09	
	19	16.80	31.58	22.96	0.514	0.15	
	29	15.60	32.27	23.76	0.534	0.28	
	48	12.80	32.74	24.70	0.582	0.63	
	72	8.14	32.80	25.55	0.599	1.01	
	96	7.03	32.77	25.68	0.584	1.14	
	144	7.33	32.85	25.70	0.406	1.62	
	192	7.14	33.69	26.39	0.332	2.16	
	288	5.75 ^c	33.87	26.71	0.243	1.62	
	1	291	5.82 ^c	33.87	26.70	0.247	1.98
		482	4.92	34.07	26.97	0.058	2.56
		722	4.00	34.24	27.20	0.018	2.97
967		3.44	34.38	27.37	0.022	2.42	
1446		2.58	34.48	27.53	0.053	2.37	

INTERPOLATED

0	18.40	30.10	21.46	0.494	0.06
10	18.00	30.27	21.68	0.498	0.09
20	16.70	31.70	23.178	0.513	0.16
30	15.40	32.36	23.87	0.535	0.32
50	12.30	32.75	24.80	0.585	0.68
75	8.00	32.79	25.56	0.597	1.02
100	7.05	32.77	25.68	0.578	1.18
150	7.31	32.86	25.72	0.396	1.68
200	7.08	33.71	26.41	0.324	2.15
250	6.32	33.81	26.59	0.278	2.04
300	5.70	33.88	26.73	0.232	2.00
400	5.18	34.00	26.88	0.130	2.32
500	4.86	34.09	26.99	0.050	2.58
600	4.45	34.16	27.08	0.029	2.78
700	4.08	34.23	27.19	0.019	2.94
800	3.80	34.29	27.26	0.020	2.86
1000	3.35	34.39	27.29	0.028	2.42
1200	2.98	34.44	27.46	0.039	2.39

STATION 144-35

43° 59' N, 125° 14' W - W of Suislaw R

18 August 1956 Weather: 00 Barometer: 30.13 in
 Messenger time: 0053 (+8) Sea height: 1 Wind: 005°, 4 kn
 Depth: 1110 fm, 2030 m Visibility: 7 Clouds: 4,8, amt 7
 Air temperature: dry 61°F, wet 60°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
2	0	16.62	30.86	22.45	0.513	0.19
	10	13.78	32.00	23.94	0.577	0.29
	20	9.21	32.46	25.12	0.636	0.54
	30	8.38	32.56	25.33	0.576	0.82
	50	7.68	32.69	25.53	0.542	1.17
	75	7.67	33.00	25.77	0.456	1.47
	100	7.70	33.42	26.10	0.346	1.84
	143	7.42	33.79	26.43	0.253	1.91
	191	7.04	33.93	26.59	0.204	2.56 ^b
	288	5.97 ^c	33.95	26.75	0.181 ^c	2.13 ^c
1	287	5.92 ^c	33.93 ^c	26.74	0.201 ^c	2.18 ^c
	478	4.84	34.08	26.99	0.059	2.62
	720	4.32	34.26	27.19	0.018	2.85
	958	3.62	34.38	27.35	0.017	2.73
	1453	2.82	34.51	27.53	0.057	2.89

INTERPOLATED

0	16.62	30.86	22.45	0.513	0.19
10	13.78	32.00	23.94	0.577	0.29
20	9.21	32.46	25.12	0.636	0.54
30	8.38	32.56	25.33	0.576	0.82
50	7.68	32.69	25.53	0.542	1.17
75	7.67	33.00	25.77	0.456	1.47
100	7.70	33.42	26.10	0.346	1.84
150	7.39	33.82	26.46	0.245	1.92
200	6.88	33.93	26.62	0.202	2.00
250	6.28	33.94	26.70	0.197	2.08
300	5.81	33.94	26.76	0.177	2.18
400	5.19	34.01	26.89	0.100	2.43
500	4.80	34.10	27.00	0.054	2.68
600	4.68	34.17	27.07	0.035	2.77
700	4.41	34.25	27.17	0.020	2.84
800	4.10	34.30	27.24	0.016	2.81
1000	3.50	34.40	27.38	0.019	2.73
1200	2.85	34.46	27.49	0.030	2.75

STATION 144-36

43° 59'N, 124° 55'W - W of Suislaw R

18 August 1956

Messenger time: 0704 (+8)

Depth: 175 fm, 320 m

Weather: 02

Sea height: 1

Visibility: 7

Air temperature: dry 60°F, wet 59°F

Barometer: 30.12 in

Wind: 010°, 2 kn

Clouds: 0, amt 1

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	13.00	32.20	24.25	0.604	0.38
	5	12.74	32.38	24.44	0.628	0.37
	10	10.86	32.62	24.97	0.682	0.40
	19	8.66	32.75	25.43	0.491	1.18
	28	7.90	32.95	25.80	0.412	1.61
	47	7.68	33.38	26.07	0.309	1.68
	70	7.44	33.66	26.32	0.217	1.66
	94	7.04	33.86	26.54	0.160	2.75
	141	6.87	33.90	26.69	0.144	2.89

INTERPOLATED

	0	13.00	32.20	24.25	0.604	0.38
	10	10.86	32.62	24.97	0.682	0.40
	20	8.50	32.78	25.48	0.480	1.40
	30	7.85	33.00	25.75	0.400	1.63
	50	7.65	33.40	26.09	0.295	1.68
	75	7.35	33.71	26.37	0.200	1.72
	100	7.00	33.87	26.55	0.158	2.77
	150	(6.85)	(33.90)	(26.59)	(0.145)	(2.90)

STATION 144-37

44° 59'N, 125° 18'W - W of Cascade Head

18 August 1956 Weather: 03 Barometer: 30.11 in
 Messenger time: 1735 (+8) Sea height: 1 Wind: 310°, 5 km
 Depth: 1060 fm, 1939 m Visibility: 8 Clouds: 6,8, amt 2
 Air temperature: dry 64°F, wet 62°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
2	0	18.45	30.52	21.76	0.507	0.17
	10	16.18	30.88	22.57	0.538	0.24
	19	9.60	32.36	24.98	0.579	0.83
	29	8.46	32.57	25.32	0.567	1.02
	48	7.56	32.68	25.64	0.547	1.28
	72	7.42	33.04	25.84	0.428	1.71
	96	7.63	33.46	26.14	0.331	1.99
	144	7.40	33.78	26.42	0.262	2.46
	191	6.78	33.94	26.65	0.201	2.63
	286	6.12 ^c	34.02 ^c	26.79	0.141 ^a	2.66 ^a
1	286	6.02 ^c	33.95 ^c	26.74	0.180 ^b	2.18 ^b
	478	5.52	34.13	26.95	0.068	2.53
	719	4.23	34.29	27.22	0.024	2.68
	956	3.63	34.40	27.37	0.023	2.57
	1435	2.66	34.48	27.52	0.057	2.57

INTERPOLATED

0	18.45	30.52	21.76	0.507	0.17
10	16.18	30.88	22.57	0.538	0.24
20	9.30	32.40	25.06	0.578	0.84
30	8.30	32.58	25.35	0.566	1.04
50	7.55	32.71	25.56	0.550	1.30
75	7.44	33.12	25.90	0.418	1.74
100	7.63	33.50	26.17	0.326	2.04
150	7.33	33.80	26.45	0.254	2.48
200	6.69	33.95	26.66	0.194	2.63
250	6.28	33.97	26.72	0.161	2.66
300	6.00	33.99	26.78	0.135	2.65
400	5.69	34.07	26.88	0.093	2.57
500	5.42	34.14	26.97	0.060	2.53
600	4.85	34.21	27.09	0.038	2.59
700	4.31	34.28	27.20	0.027	2.67
800	3.98	34.34	27.29	0.025	2.65
1000	3.52	34.41	27.39	0.027	2.57
1200	3.08	34.45	27.46	0.039	2.57

STATION 144-38

46° 00'N, 124° 13'W - NW of Tillamook Head

19 August 1956 Weather: 50 Barometer: 30.14 in
 Messenger time: 0826 (+8) Sea height: 1 Wind: 060°, 4 kn
 Depth: 52 fm, 95 m Visibility: 3 Clouds: 6, amt 9
 Air temperature: dry 60°F, wet 60°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	12.74	30.27	22.81	0.633	0.26
	5	12.03	32.20	24.43	0.578	0.45
	10	11.30	32.54	24.83	0.553	0.69
	20	7.92	32.94	25.69	0.374	1.73
	29	7.37	33.33	26.18	0.246	2.21
	48	7.26	33.74	26.41	0.119	2.69
	77	6.96	33.91	26.59	0.103	2.89

INTERPOLATED

	0	12.74	30.27	22.81	0.633	0.26
	10	11.30	32.54	24.83	0.553	0.69
	20	7.92	32.94	25.69	0.374	1.73
	30	7.35	33.34	26.09	0.221	2.24
	50	7.23	33.75	26.42	0.117	2.70
	75	6.93	33.91	26.69	0.102	2.90

STATION 144-39

46° 00'N, 125° 31'W - W of Tillamook Head

20 August 1956 Weather: 02 Barometer: 30.08 in
 Messenger time: 0021 (+8) Sea height: 2 Wind: 000°, 12 kn
 Depth: 1072 fm, 1961 m Visibility: 7 Clouds: 0, amt 1
 Air temperature: dry 63°F, wet 62°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
2	0	17.63	31.73	22.88	0.498	0.28
	10	17.62	31.74	22.89	0.496	0.27
	19	17.14	31.74	23.01	0.507	0.32
	29	10.52	32.47	24.91	0.672	0.50
	48	7.82	32.64	25.47	0.561	1.15
	72	6.94	32.79	25.71	0.549	1.27
	96	7.58	33.42	26.12	0.349	2.00
	144	7.34	33.80	26.45	0.231	2.49
	192	3.71	33.95	27.00	0.156	2.86
	288	6.08	33.99	26.76	0.131	2.35 ^b
1	292	6.08	33.99	26.76	0.128	2.60 ^a
	484	5.32	34.11	26.95	0.058	2.91
	719	4.40	34.23	27.16	0.023	3.10
	964	3.65	34.35	27.33	0.020	2.92
	1444	2.76	34.49	27.52	0.051	2.87

INTERPOLATED

0	17.63	31.73	22.89	0.498	0.28
10	17.62	31.74	22.19	0.496	0.27
20	16.50	31.74	23.15	0.509	0.32
30	10.35	32.46	24.93	0.529	0.57
50	7.60	32.66	25.52	0.560	1.17
75	6.95	32.85	25.76	0.542	1.33
100	7.57	33.52	26.20	0.340	2.06
150	7.29	33.82	26.47	0.221	2.56
200	6.83	33.96	26.64	0.153	2.84
250	6.41	33.98	26.72	0.137	2.66
300	6.03	34.00	26.78	0.127	2.60
400	5.58	34.06	26.88	0.090	2.76
500	5.25	34.12	26.97	0.055	2.97
600	4.82	34.17	27.07	0.039	3.06
700	4.44	34.22	27.14	0.025	3.10
800	4.11	34.27	27.22	0.020	3.06
1000	3.58	34.36	27.34	0.021	2.91
1200	3.20	34.42	27.43	0.031	2.88

STATION 144-40

46° 00'N, 127° 30'W - W of Tillamook Head

21 August 1956 Weather: 03 Barometer: 30.12 in
 Messenger time: 1408 (+8) Sea height: 1 Wind: 320°, 10 kn
 Depth: 1508 fm, 2758 m Visibility: 7 Clouds: 6,9, amt 6
 Air temperature: dry 64.5°F, wet 64°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	18.85	30.77	21.86	0.486	0.20
	10	18.52	31.06	22.16	0.490	0.18
	20	16.72	31.43	22.87	0.520	0.27
	30	14.06	32.32	24.13	0.596	0.39
	50	10.14	32.70	25.16	0.609	0.87
	75	7.36	32.72	25.60	0.593	1.15
	100	6.97	32.76	25.68	0.582	1.25
	143	7.60	33.49	26.17	0.331	2.12
	192	7.34	33.86	26.50	0.218	2.56
	288	6.16 ^c	33.95	26.72	0.181 ^c	2.48 ^a
1	287	6.20 ^c	33.94	26.71	0.172 ^c	2.19 ^b
	480	4.74	34.05	26.98	0.059	2.67
	720	4.04	34.25	27.21	0.022	2.93
	961	3.53	34.36	27.35	0.017	3.05
	1442	2.59	34.48	27.53	0.059	2.97

INTERPOLATED

0	18.85	30.77	21.86	0.486	0.20
10	18.52	31.06	22.16	0.490	0.18
20	16.72	31.43	22.87	0.520	0.27
30	14.06	32.32	24.13	0.596	0.39
50	10.14	32.70	25.16	0.609	0.87
75	7.36	32.72	25.60	0.593	1.15
100	6.97	32.76	25.68	0.582	1.24
150	7.58	33.55	26.22	0.303	2.18
200	7.22	33.87	26.52	0.217	2.54
250	6.53	33.91	26.64	0.187	2.48
300	5.99	33.95	26.75	0.161	2.49
400	5.20	34.01	26.89	0.096	2.60
500	4.68	34.08	27.00	0.054	2.70
600	4.35	34.17	27.11	0.036	2.82
700	4.10	34.24	27.19	0.023	2.92
800	3.88	34.30	27.26	0.017	2.99
1000	3.45	34.38	27.37	0.018	3.06
1200	3.04	34.45	27.46	0.030	3.05

STATION 144-41

46° 00'N, 129° 56'W

22 August 1956
 Messenger time: 0550 (+8)
 Depth: 1250 fm, 2286 m

Weather: 61
 Sea height: 1
 Visibility: 4
 Air temperature: dry 62.8°F, wet 62.8°F

Barometer: 30.08 in
 Wind: 210°, 4 kn
 Clouds: 0, amt 10

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	18.27	32.50	23.32	0.495	0.444
	10	17.52	32.49	23.49	0.498	0.444
	19	16.67	32.48	23.68	0.510	0.444
	29	14.12	32.54	24.28	0.599	0.48
	48	9.12	32.77	25.38	0.616	1.11
	72	7.14	32.81	25.70	0.596	1.22
	96	6.74	32.82	25.76	0.591	1.30
	144	6.88	33.48	26.26	0.481	1.66
	192	6.40	33.80	26.58	0.389	1.99
	288	5.22	33.87	26.78	0.243	1.73 ^c
1	288	5.22	33.87	26.78	0.242	1.63 ^c
	480	4.14	34.03	27.02	0.092	1.82
	720	3.66	34.23	27.23	0.037	2.03
	960	3.15	34.36	27.38	0.032	1.90
	1445	2.42	34.51	27.57	0.070	1.89

INTERPOLATED

0	18.27	32.50	23.32	0.495	0.444
10	17.52	32.49	23.49	0.498	0.444
20	16.22	32.48	23.78	0.511	0.444
30	13.50	32.60	24.46	0.600	0.48
50	8.63	32.77	25.45	0.613	1.13
75	7.02	32.81	25.72	0.595	1.22
100	6.76	32.89	25.81	0.583	1.54
150	6.86	33.51	26.29	0.469	1.69
200	6.33	33.81	26.59	0.376	1.97
250	5.68	33.84	26.70	0.295	1.77
300	5.11	33.88	26.80	0.224	1.70
400	4.50	33.96	26.93	0.126	1.76
500	4.08	34.04	24.04	0.087	1.84
600	3.84	34.13	27.13	0.061	1.94
700	3.69	34.21	27.21	0.040	2.02
800	3.49	34.28	27.29	0.033	2.01
1000	3.08	34.37	27.40	0.033	1.89
1200	2.76	34.43	27.47	0.050	1.88

STATION 114-42

46° 47'N, 130° 47'W - Cobb Seamount

24 August 1956 Weather: - Barometer: - in
 Messenger time: 1614 (+8) Sea height: - Wind: -, -kn
 Depth: - Visibility: - Clouds: -, amt -
 Air temperature: dry -, wet -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
1	0	18.01	32.80	23.61	0.502	0.88
	5	17.97	32.79	23.61	0.502	0.81
	10	17.93	32.79	23.62	0.502	0.89
	19	16.81	32.83	23.92	0.519	0.93
	28	14.25	32.83	24.48	0.567	0.99
	47	9.20	32.92	25.48	0.609	1.02
	70	7.40	32.89	25.73	0.601	1.29
	94	6.95	32.99	25.87	0.564	1.58
	141	6.92	33.57	26.33	0.463	1.80
	168	6.56	33.73	26.50	0.324	2.04

INTERPOLATED						
	0	18.01	32.80	23.61	0.502	0.88
	10	17.93	32.79	23.62	0.502	0.89
	20	16.30	32.83	24.03	0.520	0.90
	30	13.50	32.83	24.63	0.578	0.99
	50	8.69	32.92	25.56	0.607	1.03
	75	7.27	32.91	25.76	0.595	1.28
	100	6.92	33.01	25.89	0.550	1.61
	150	6.81	33.64	26.40	0.427	1.85

STATION 144-43

48° 07'N, 135° 12'W

25 August 1956
 Messenger time: 2158 (+8)
 Depth: 2200 fm, 4023 m

Weather: 52
 Sea height: 3
 Visibility: 4
 Air temperature: dry 60.5°F, wet 61°F

Barometer: 30.20 in
 Wind: 250°, 17 kn
 Clouds: -, amt 9

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	16.22	32.63	23.90	0.532	0.71
	10	16.22	32.64	23.91	0.531	0.70
	20	15.57	32.68	24.08	0.549	0.62
	30	11.82	32.79	24.93	0.618	0.87
	50	7.97	32.79	25.57	0.622	1.04
	75	6.41	32.83	25.81	0.606	1.20
	100	6.00	32.83	25.86	0.603	1.32
	143	5.84	33.32	26.27	0.496	1.66
	190	5.77	33.80	26.66	0.351	1.88
1	286	4.72 ^c	33.87	26.83	0.201 ^c	2.26 ^a
	281	4.82 ^c	33.87	26.82	0.215 ^c	1.82 ^b
3	471	4.00	34.05	27.05	0.086	2.31
	706	3.54	34.22	27.23	0.037	2.75
	946	3.09	34.34	27.37	0.027	2.57
	1397	2.38	34.47	27.54	0.040	2.58

INTERPOLATED

0	16.22	32.63	23.90	0.532	0.71
10	16.22	32.64	23.91	0.531	0.70
20	15.57	32.68	24.08	0.549	0.62
30	11.82	32.79	24.93	0.618	0.87
50	7.97	32.79	25.57	0.622	1.04
75	6.41	32.83	25.81	0.606	1.20
100	6.00	32.83	25.86	0.603	1.32
150	5.82	33.40	26.33	0.460	1.69
200	5.68	33.81	26.67	0.330	1.94
250	5.11	33.85	26.77	0.250	2.17
300	4.69	33.89	26.85	0.189	2.26
400	4.24	33.99	26.98	0.124	2.28
500	3.95	34.08	27.08	0.077	2.35
600	3.72	34.15	27.16	0.056	2.55
700	3.52	34.22	27.24	0.037	2.74
800	3.33	34.28	27.30	0.031	2.65
1000	3.00	34.36	27.40	0.027	2.57
1200	2.68	34.44	27.47	0.030	2.57

STATION 144-44

49° 05'N, 133° 04'W

26 August 1956

Messenger time: 2059 (+8)

Depth: 1800 fm, 3292 m

Weather: 50

Sea height: 2

Visibility: 5

Air temperature: dry 58°F, wet 55°F

Barometer: 30.22 in

Wind: 290°, 13 kn

Clouds: -, amt 9

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	16.10	32.73	24.00	0.529	0.62
	10	16.08	32.72	24.00	0.528	0.67
	20	16.06	32.72	24.00	0.530	0.57
	30	14.90	32.74	24.28	0.554	0.58
	50	10.74	32.78	25.12	0.599	0.91
	75	6.74	32.79	25.74	0.605	1.09
	100	6.46	32.81	25.79	0.583	1.20
	142	5.52	33.03	26.08	0.558	1.56
	190	5.94	33.79	26.63	0.380	2.04
	285	5.05	33.86	26.79	0.241 ^c	2.07 ^c
1	276	5.11	33.86	26.78	0.242 ^c	2.28 ^c
	462	4.15	34.00	27.00	0.092	2.26
	695	3.64	34.22	27.22	0.034	2.39
	930	3.22	34.33	27.35	0.023	2.40
	1399	2.46	34.48	27.54	0.043	2.39

INTERPOLATED

0	16.10	32.73	24.00	0.529	0.62
10	16.08	32.72	24.00	0.528	0.67
20	16.06	32.72	24.00	0.530	0.57
30	14.90	32.74	24.28	0.554	0.58
50	10.74	32.78	25.12	0.599	0.91
75	6.74	32.79	25.74	0.605	1.09
100	6.42	32.81	25.80	0.583	1.20
150	5.56	33.16	26.18	0.535	1.62
200	5.89	33.80	26.64	0.360	2.06
250	5.42	33.84	26.73	0.286	2.12
300	4.92	33.88	26.82	0.224	2.17
400	4.40	33.95	26.93	0.137	2.23
500	4.05	34.03	27.03	0.073	2.28
600	3.84	34.13	27.13	0.048	2.34
700	3.63	34.22	27.23	0.033	2.39
800	3.45	34.28	27.29	0.028	2.40
1000	3.10	34.35	27.38	0.024	2.40
1200	2.78	34.44	27.48	0.031	2.40

STATION 144-45

50° 01'N, 131° 28'W

27 August 1956 Weather: 00 Barometer: 30.18 in
 Messenger time: 1911 (+8) Sea height: 1 Wind: 270°, 8 kn
 Depth: 1400 fm, 2560 m Visibility: 6 Clouds: -, amt 8
 Air temperature: dry 59°F, wet 56°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
OBSERVED						
3	0	16.54	32.21	23.50	0.508	0.28
	10	16.53	32.21	23.51	0.511	0.32
	20	16.42	32.21	23.53	0.514	0.29
	30	13.44	32.54	24.42	0.594	0.59
	50	9.18	32.63	25.26	0.571 ^b	1.00
	75	6.24	32.79	25.80	0.612	1.03
	100	5.66	32.81	25.89	0.592	1.23
	141	6.38	33.55	26.38	0.371	1.84
	188	6.18	33.87	26.66	0.216	2.35
	282	5.15	33.92	26.82	0.167 ^c	2.05 ^c
1	285	5.12	33.93	26.84	0.149 ^c	1.98 ^c
	477	4.46	34.11	27.05	0.047	2.28
	714	3.87	34.25	27.23	0.024	2.41
	956	3.24	34.38	27.39	0.017	1.80 ^b
2	1438	2.46	34.49	27.55	0.054	1.93

INTERPOLATED

0	16.54	32.21	23.50	0.508	0.28
10	16.53	32.21	23.51	0.511	0.32
20	16.42	32.21	23.53	0.514	0.29
30	13.44	32.53	24.42	0.594	0.59
50	9.18	32.64	25.27	0.605	1.00
75	6.24	32.79	25.80	0.612	1.03
100	5.66	32.81	25.89	0.592	1.20
150	6.34	33.64	26.46	0.342	1.94
200	6.03	33.88	26.69	0.208	2.33
250	5.51	33.92	26.78	0.175	2.09
300	5.07	33.95	26.86	0.145	2.06
400	4.64	34.05	26.99	0.089	2.19
500	4.33	34.12	27.07	0.044	2.30
600	4.12	34.18	27.14	0.033	2.36
700	3.88	34.24	27.22	0.026	2.40
800	3.61	34.30	27.29	0.020	2.37
1000	3.13	34.40	27.42	0.017	2.26
1200	2.74	34.46	27.50	0.027	2.11

STATION 144-46

49° 59'N, 129° 28'W

28 August 1956
 Messenger time: 1941 (+8)
 Depth: 1200 fm, 2195 m

Weather: 15
 Sea height: 2
 Visibility: 6
 Air temperature: dry 59°F, wet 59°F

Barometer: 29.97 in
 Wind: 290°, 9 kn
 Clouds: 6, 9, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
3	0	15.74	31.92	23.46	0.534	0.38
	10	15.70	31.92	23.47	0.536	0.32
	19	16.20	32.36	23.70	0.526	0.31
	28	14.22	32.54	24.26	0.593	0.47
	47	8.80	32.66	25.34	0.599	1.00
	71	6.58	32.75	25.72	0.600	1.10
	95	6.18	32.78	25.80	0.602	1.18
	142	6.14	33.28	26.20	0.446	1.73
	188	6.28	33.82	26.61	0.279	2.22
	285	5.24 ^c	33.90	26.80	0.201 ^c	1.94 ^a
1	281	5.36 ^c	33.89	26.78	0.187 ^c	1.52 ^b
	469	4.54	33.88 ^b	26.86	0.047	1.79
	705	3.96	34.23	27.20	0.012	2.01
2	943	3.18	34.27	27.31	0.025	1.86
	1239	2.56	34.49	27.54	0.041	2.08

INTERPOLATED

0	15.74	31.92	23.46	0.534	0.38
10	15.70	31.92	23.47	0.536	0.32
20	16.00	32.36	23.74	0.549	0.30
30	12.70	32.55	24.58	0.594	0.59
50	7.85	32.66	25.48	0.599	1.01
75	6.48	32.76	25.75	0.600	1.12
100	6.15	32.83	25.84	0.600	1.22
150	6.05	33.43	26.33	0.417	1.84
200	6.20	33.83	26.62	0.263	2.18
250	5.68	33.87	26.72	0.217	2.03
300	5.22	33.92	26.82	0.180	1.92
400	4.78	34.03	26.95	0.089	1.82
500	4.47	34.11	27.05	0.038	1.82
600	4.22	34.18	27.13	0.025	1.91
700	3.98	34.23	27.20	0.012	2.00
800	3.64	34.25	27.25	0.016	1.95
1000	3.05	34.30	27.34	0.028	1.89
1200	2.63	34.45	27.50	0.039	2.03

STATION 144-47

48° 32'N, 127° 57'W - W of Vancouver Island

29 August 1956 Weather: 01 Barometer: 30.15 in
 Messenger time: 1927 (+8) Sea height: 2 Wind: 315°, 20 kn
 Depth: 1350 fm, 2468 m Visibility: 7 Clouds: 8, amt 2
 Air temperature: dry 59°F, wet 56°F

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	15.72	32.05	23.57	0.529	0.22
3	10	15.70	32.07	23.59	0.529	0.27
	19	15.69	32.08	23.60	0.530	0.27
	29	11.09	32.47	24.81	0.577	0.80
	47	7.60	32.59	25.46	0.530	1.14
	71	6.50	32.81	25.78	0.520	1.41
	95	6.89	33.36	26.16	0.388	1.80
	133	6.89	33.78	226.50	0.257	2.29
	178	6.61	33.87	26.60	0.221	2.37
	266	5.40	33.93 ^b	26.80	0.177 ^b	2.30
1	201	6.38	33.92	26.67	0.182	1.75 ^b
	341	5.34	34.04	26.90	0.098	1.96 ^b
	513	4.74	34.14	27.04	0.047	2.50
	688	4.12	34.24	27.19	0.022	2.33
	1097	3.23	34.42	27.42	0.029	2.32

INTERPOLATED

	0	15.72	32.05	23.57	0.529	0.22
	10	15.70	32.07	23.59	0.529	0.27
	20	14.50	32.12	23.81	0.535	0.40
	30	10.90	32.48	24.86	0.575	0.84
	50	7.43	32.61	25.50	0.526	1.20
	75	6.52	32.88	25.84	0.475	0.84
	100	6.90	33.42	26.21	0.364	1.86
	150	6.80	33.82	26.54	0.236	2.30
	200	6.40	33.92	26.67	0.186	2.31
	250	5.65	33.96	26.80	0.151	2.30
	300	5.38	34.01	26.87	0.120	2.32
	400	5.12	34.08	26.95	0.074	2.42
	500	4.78	34.13	27.03	0.050	2.48
	600	4.40	34.19	27.12	0.034	2.41
	700	4.09	34.24	27.20	0.024	2.33
	800	3.83	34.29	27.26	0.021	2.32
	1000	3.40	34.38	27.38	0.026	2.32

M. V. JOHN N. COBB CRUISE NO. 28*STATION 1

46° 17' N, 126° 58' W

17 July 1956 Weather: 02 Barometer: 30.25 in.
 Messenger time: 2029 (+8) Sea height: 8 Wind: -, - kn
 Depth: not reported Visibility: 2 Clouds: -, amt 0
 Air temperature: dry 59°F, wet -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	15.72	31.93	23.47	-	-
	3	15.33	32.12 ^b	23.71	-	-
	17	11.77	31.99	24.32	-	-
	26	8.83	32.16	24.95	-	-
2	50	7.94	32.50	25.34	-	-
	200	6.15	33.93	26.71	-	-
	422	5.16	34.09	26.96	-	-

INTERPOLATED

	0	15.72	31.93	23.47	-	-
	10	13.70	31.97	23.93	-	-
	20	10.90	32.05	24.52	-	-
	30	8.55	32.22	25.04	-	-
	50	7.94	32.50	25.34	-	-
	75	7.51	32.74	25.58	-	-
	100	7.19	32.97	25.82	-	-
	150	6.62	33.44	26.26	-	-
	200	6.15	33.93	26.71	-	-
	250	5.84	33.98	26.79	-	-
	300	5.60	34.02	26.85	-	-
	400	5.22	34.08	26.94	-	-

* Oxygen determinations were obtained on 4 stations only on Cruise 28. No phosphate analysis was done on this cruise.

STATION 1

46° 14' N, 126° 59' W

18 July 1956
Messenger time: A. M.
Depth: not reported

Weather: 41 Barometer: 30.27 in
Sea height: 2 Wind: 315°, 10 kn
Visibility: 3 Clouds: -, amt -
Air temperature; dry 57°F, wet -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

3	0	15.73	32.00	23.53	-	-
	50	8.36	32.57	25.34	-	-
	75	7.61	32.67	25.52	-	-

INTERPOLATED

	0	15.73	32.00	23.53	-	-
	10	14.40	32.11	23.90	-	-
	20	12.90	32.22	24.28	-	-
	30	11.35	32.33	24.67	-	-
	50	8.36	32.57	25.34	-	-
	75	7.61	32.67	25.52	-	-

STATION 2

45° 08'N, 126° 54'W

18 July 1956
 Messenger time: 1949 (+8)
 Depth: not reported

Weather: 02
 Sea height: 3
 Visibility: 8
 Air temperature: dry 61°F, wet -

Barometer: 30.13 in
 Wind: NW, 20 kn
 Clouds: -, amt 0

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1, 2	0	16.71	30.05	21.81	-	-
	22	11.04	32.31	24.70	-	-
	43	-	32.56	-	-	-
	65	7.64	32.81 ^c	25.63	-	-
	73	7.25	32.77 ^c	25.74	-	-
3	159	7.24	33.85	26.50	-	-
	237	-	33.97	-	-	-
	468	5.30	34.11	26.96	-	-
	856	3.87	34.32	27.28	-	-

INTERPOLATED

	0	16.71	30.05	22.82	-	-
	10	16.71	31.89	23.22	-	-
	20	15.00	32.28	23.90	-	-
	30	11.39	32.40	24.70	-	-
	50	8.42	32.63	25.37	-	-
	75	7.24	32.86	25.72	-	-
	100	7.28	33.32	26.08	-	-
	150	7.23	33.80	26.46	-	-
	200	6.95	33.92	26.60	-	-
	250	6.62	33.98	26.69	-	-
	300	6.31	34.04	26.78	-	-
	400	5.69	34.13	26.93	-	-
	500	5.17	34.19	27.04	-	-
	600	4.79	34.24	27.11	-	-
	700	4.40	34.28	27.19	-	-
	800	4.05	34.31	27.25	-	-

STATION 3

46° 47'N, 130° 48'W - Cobb Seamount

20 July 1956 Weather: 03 Barometer: 30.13 in
 Messenger time: 1700 (+8) Sea height: 2 Wind: SE, 14 kn
 Depth: 102 fm, 186 m Visibility: 3 Clouds: 0, amt. 0
 Air temperature: dry 58°F, wet -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P μ g-at/L
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OBSERVED

1	0	15.40	32.42	23.91	-	-
	22	13.63	32.81	24.58	-	-
	41	-	32.87	--	-	-
	63	7.51	32.88	25.70	-	-
	83	6.86	32.88	25.79	-	-
2	120	6.61	32.93	25.79	-	-

INTERPOLATED

	0	15.40	32.42	23.92	-	-
	10	14.75	32.70	24.28	-	-
	20	14.15	32.81	24.49	-	-
	30	13.45	30.85	24.66	-	-
	50	10.25	32.8	25.28	-	-
	75	7.02	32.88	25.77	-	-
	100	6.71	32.89	25.82	-	-

STATION 9

46° 00'N, 140° 00'W

27 July 1956 Weather: 02 Barometer: 30.45 in
 Messenger time: 2209 (+8) Sea height: 2 Wind: NNE, 9 km
 Depth: not reported Visibility: 7 Clouds: 4, amt 4
 Air temperature: dry 54°F, wet -

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

1	0	14.61	32.79	24.37	-	-
	25	12.78	32.76	24.72	0.554	-
	50	-	32.81	-	0.576	-
	75	6.75	32.92	25.84	-	-
	100	6.26	32.93	25.91	0.791	e
2	198	6.10	33.83	26.64	0.426	-
	297	5.18	33.92	26.82	0.247	-
	596	3.87	34.16	27.15	0.066	-
	996	2.99	34.40	27.43	0.037	-

INTERPOLATED

	0	14.61	32.79	24.37	-	-
	10	14.46	32.77	24.39	-	-
	20	13.90	32.76	24.50	-	-
	30	12.10	32.77	24.87	0.561	-
	50	10.21	32.81	25.23	0.574	-
	75	6.75	32.93	25.84	0.568	-
	100	6.26	32.93	25.90	0.553	-
	150	6.16	33.46	26.34	0.506	-
	200	6.09	33.83	26.63	0.419	-
	250	5.65	33.87	26.73	0.322	-
	300	5.17	33.92	26.82	0.244	-
	400	4.69	34.01	26.95	0.142	-
	500	4.30	34.09	27.04	0.082	-
	600	3.96	34.16	27.15	0.062	-
	700	3.67	34.23	27.22	0.052	-
	800	3.42	34.29	27.30	0.046	-
	1000	(2.97)	(34.40)	(27.43)	(0.035)	-

STATION 10

46° 00'N, 133° 30'W

29 July 1956
 Messenger time: 2201 (+8)
 Depth: not reported

Weather: 02
 Sea height: 2
 Visibility: 6
 Air temperature: dry 54°F, wet -

Barometer: 30.33 in
 Wind: WNW, 8 km
 Clouds: 4, amt 7

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ $\mu\text{g-at/L}$
OBSERVED						
3	0	14.68	32.92	24.46	0.545	-
	25	14.44	32.87	24.47	0.542	-
	50	9.50	32.88	25.40	0.623	-
	73	7.98	32.91	25.66	0.593	-
	97	7.41	32.88	25.72	0.586	-
1, 2	196	6.97	33.77	26.48	0.476	-
	294	5.83	33.91	26.73	0.315	-
	590	4.16	34.12	27.09	0.069	-
	986	3.19	34.37	27.39	0.024	-

INTERPOLATED						
	0	14.68	32.92	24.46	0.520	-
	10	14.68	32.89	24.43	0.527	-
	20	14.68	32.87	24.42	0.536	-
	30	14.50	32.87	24.47	0.551	-
	50	9.73	32.88	25.37	0.623	-
	75	7.95	32.91	25.67	0.592	-
	100	7.39	32.95	25.77	0.578	-
	150	7.14	33.57	26.30	0.532	-
	200	6.93	33.78	26.49	0.471	-
	250	6.41	33.86	26.62	0.391	-
	300	5.79	33.91	26.74	0.305	-
	400	5.03	33.99	26.89	0.181	-
	500	4.53	34.06	27.01	0.099	-
	600	4.12	34.13	27.10	0.068	-
	700	3.79	34.19	27.18	0.052	-
	800	3.53	34.26	27.27	0.038	-
	1000	(3.15)	(34.38)	(27.40)	(0.024)	-

STATION 11

46° 00'N, 127° 27'W

31 July 1956
 Messenger time: 2207 (+8)
 Depth: not reported

Weather: 02
 Sea height: 3
 Visibility: 7
 Air temperature: dry 57°F, wet -

Barometer: 30.22 in
 Wind: NW, 20 kn
 Clouds: 4, amt 6

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

2	0	16.08	31.50	23.07	0.536	-
	24	14.81	31.88	23.63	0.569	-
	47	8.14	32.65	25.22	0.597	-
	72	7.21	32.72	25.62	0.604	-
	94	7.15	32.88	25.73	0.544	-
1	186	7.11	33.88	26.54	0.349	-
	281	6.25	33.96	26.72	0.177	-
	576	4.80	34.17	27.06	0.057	-
	961	3.73	34.41	27.36	0.028	-

INTERPOLATED

0	16.08	31.50	23.06	0.536	-
10	16.00	31.63	23.18	0.552	-
20	15.92	31.78	23.32	0.568	-
30	13.75	31.98	23.94	0.580	-
50	8.00	32.65	25.45	0.600	-
75	7.25	32.73	25.62	0.603	-
100	7.13	33.02	25.87	0.535	-
150	7.12	33.65	26.37	0.422	-
200	7.02	33.89	26.57	0.322	-
250	6.58	33.93	26.65	0.222	-
300	6.17	33.97	26.74	0.161	-
400	5.60	34.05	26.87	0.105	-
500	5.11	34.12	26.99	0.071	-
600	4.69	34.19	27.09	0.051	-
700	4.33	34.25	27.18	0.039	-
800	4.04	34.31	27.26	0.032	-

STATION 12

45° 58'N, 125° 49'W

1 Aug 1956
 Messenger time: 2213 (+8)
 Depth: not reported
 Weather: 62
 Sea height: 3
 Visibility: 5
 Air temperature: dry 56°F, wet -
 Barometer: 30.17 in
 Wind: NW, 26 kn
 Clouds: 0, amt 9

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
OBSERVED						
2	0	16.31	31.58	23.07	0.508	-
	25	14.96	31.99	23.68	0.530	-
	50	8.14	32.65	25.43	0.610	-
	73	7.07	32.72	25.64	0.576	-
	97	7.18	32.89	25.76	0.482	-
1	196	6.78	33.84	26.56	0.293	-
	296	5.97	33.95	26.75	0.176	-
	593	4.64	34.19	27.10	0.031	-
	993	3.05	34.39	27.42	0.017	-

INTERPOLATED						
	0	16.31	31.58	23.07	0.508	-
	10	16.31	31.73	23.19	0.513	-
	20	16.31	31.89	23.31	0.521	-
	30	14.62	32.06	23.82	0.533	-
	50	8.14	32.65	25.43	0.610	-
	75	7.07	32.72	25.64	0.575	-
	100	7.20	32.79	25.67	0.472	-
	150	6.99	33.14	25.98	0.367	-
	200	6.73	33.85	26.57	0.292	-
	250	6.40	33.91	26.66	0.228	-
	300	5.92	33.95	26.76	0.175	-
	400	5.12	34.04	26.90	0.102	-
	500	4.60	34.12	27.05	0.062	-
	600	4.21	34.19	27.14	0.035	-
	700	3.85	34.25	27.22	0.026	-
	800	3.56	34.30	27.29	0.020	-
	1000		(34.39)	(27.42)	(0.015)	-

STATION 13

46° 12'N, 125° 30'W - W of Columbia River Entrance

7 Aug 1956
 Messenger time: 0742 (+8)
 Depth: 900 fm, 1646 m

Weather: 02
 Sea height: 2
 Visibility: 8
 Air temperature: dry 60°F, wet -

Barometer: 30.29 in
 Wind: -, 16 kn
 Clouds: 0, amt 2

Cast no.	Depth m	T °C	S o/oo	Density σ_t	O ₂ mg-at/L	PO ₄ -P $\mu\text{g-at/L}$
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OBSERVED

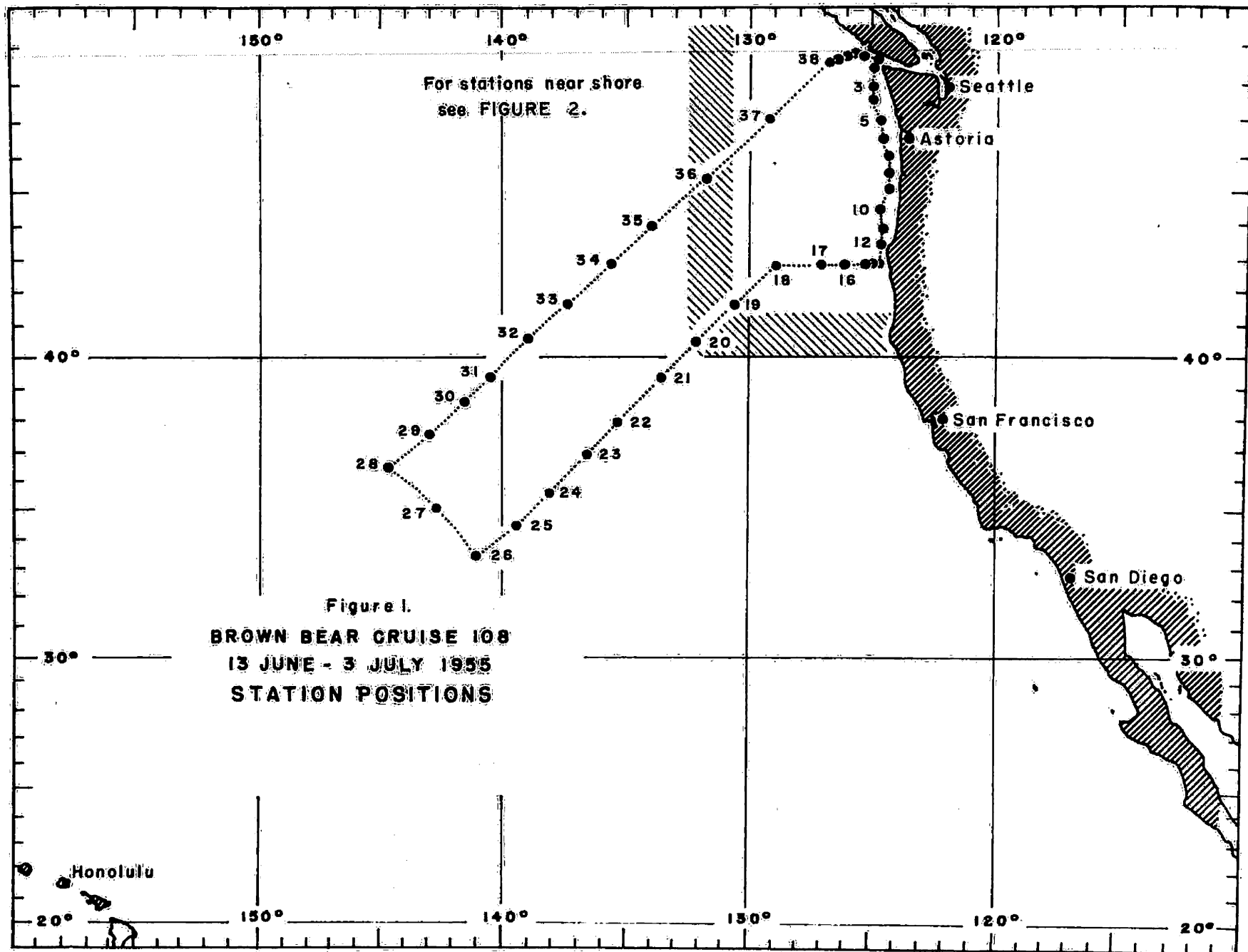
2	0	16.14	31.67	23.18	-	-
	24	13.55	31.87	23.88	-	-
	48	8.02	32.64	25.43	-	-
	72	7.39	32.89	25.73	-	-
	96	7.51	33.31	26.04	-	-
1	190	6.87	33.93	26.62	-	-
	285	5.70	34.00	26.82	-	-
	532	5.28	34.10	26.95	-	-

INTERPOLATED

	0	16.14	31.67	23.10	-	-
	10	16.14	31.73	23.22	-	-
	20	14.40	31.82	23.67	-	-
	30	11.20	31.92	24.37	-	-
	50	8.33	32.24	25.08	-	-
	75	7.40	32.91	25.74	-	-
	100	7.53	33.37	26.08	-	-
	150	7.42	33.82	26.46	-	-
	200	6.72	33.94	26.64	-	-
	250	6.03	33.98	26.76	-	-
	300	5.62	34.01	26.84	-	-
	400	5.38	34.05	26.90	-	-
	500	5.30	34.09	26.94	-	-

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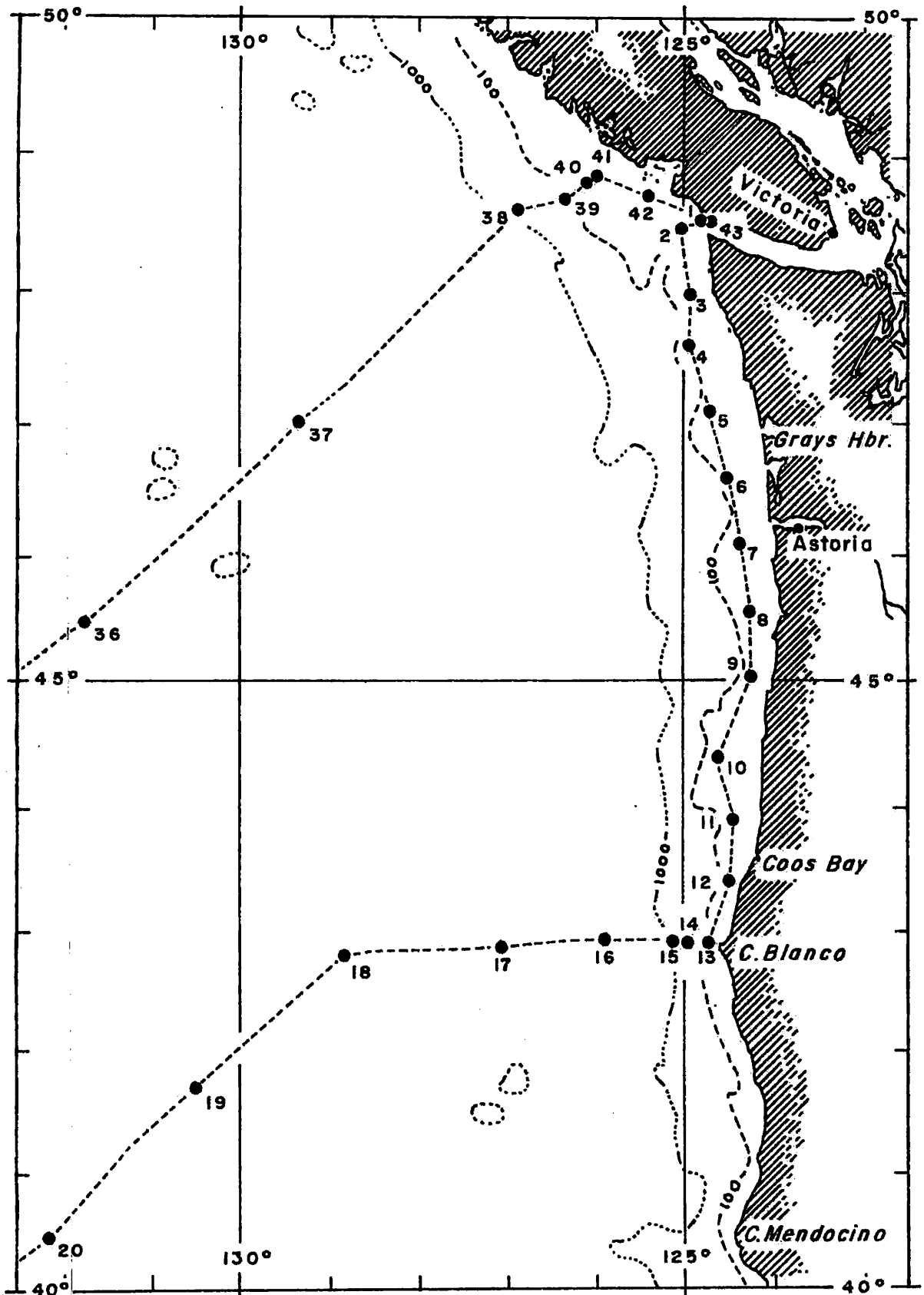


Figure 2. DETAIL OF TRACK NEAR THE COAST
BROWN BEAR CRUISE 108

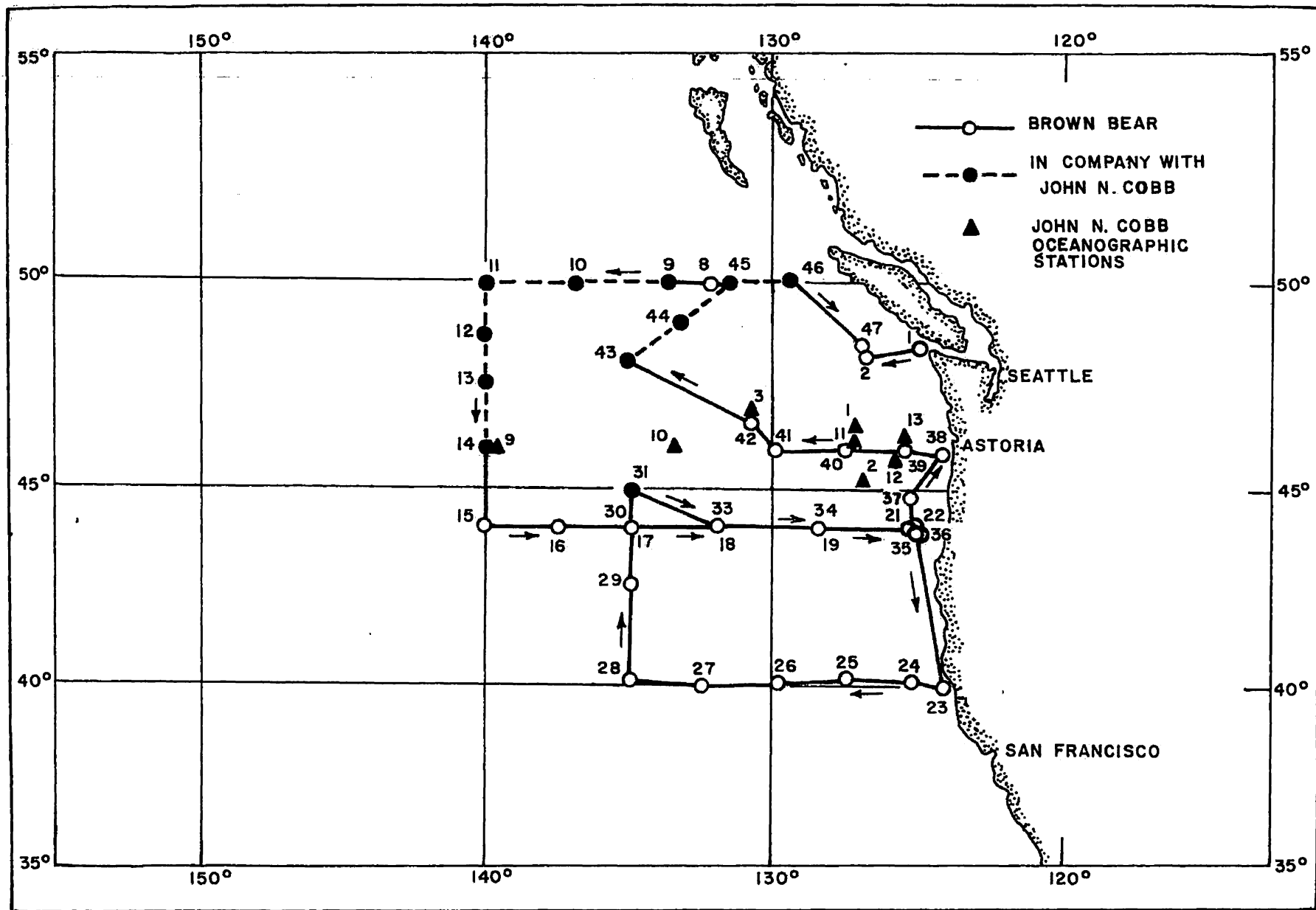


Figure 3. BROWN BEAR CRUISE 144, 18 JULY TO 31 AUGUST 1956
 JOHN N. COBB CRUISE 28, 16 JULY TO 30 AUGUST 1956

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